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TRANSACTIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

FOR THE YEAR M.DCCC.XL.

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MEDICAL AND PHYSICAL SOCIETY

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TRANSACTIONS.

1840.

TRANSACTIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

Article I.

A short sketch of the Medical Topography of the Fortress of Bukkur and the Cantonment of Sukkur in Upper Scinde, and of the diseases which prevailed in the Brigade there from the month of March to that of December 1839. By J. Don, M. D., Staff Surgeon.

Presented by the Medical Board, January, 1840.

The fortress of Bukkur and the neighbouring cantonment of Sukkur are situated in latitude 27° 42′ North and in longitude 68° 96′ East, and are separated from each other by one half of the stream of the Indus; the other half runs between the fort and town of Roree, which with the camp and fort, occupies the crown of a range of limestone hills, narrow at this part, but widening as it extends on either side.

This range stretches in a south-westerly direction to the right of Jeysulmere for upwards of a hundred miles, but only for about two miles to the north-west, where the rock sinks under the low alluvial plain which extends towards Shikarpoor, and beyond that place to the Hala range of mountains. The flat plain through which the river Indus winds its way to the ocean, extends in a northerly and southerly direction.

The fort and cantonment are nearly on a level, and the highest building is about one hundred and thirty feet above the river, and about six hundred feet above the level of the sea. The fort of an irregular oval figure is about eight hundred yards in length,

and four hundred in breadth; its walls are washed on three sides by the river during the inundation, but to the north-eastward, a small tongue of alluvial deposit on the rock, projects out, is inclosed by an outwork and sprinkled with date palm, ceriss, and peepul trees; some of the last of which are seen on the walls and outworks in other parts of the fort. The surface of the interior of the fortress is very irregular, and is covered in all directions with the rubbish and debris of houses, mosques, and probably military buildings. There is one large mosque which, in its day, must have been a place of no small pretension to grandeur, but it is now mostly in ruins, and no part of it fit for the sacred uses of the Mussulman. There are several venerable shady trees in various parts of the fort, chiefly tamarind, peepul, and ceriss (mimosa cerissa.)

There are few habitable houses in the bazar, and these not in the best repair; when it was taken possession of by the troops, only one good public building of any size (the late residence of the Killadar) was found on the eastern wall. The walls of the fort are in bad repair as the houses they contain; many parts are tumbling into decay, and little pains seem to have been taken, to maintain their preservation. It bears the appearance of great antiquity, and is supposed to be the "Munsoora" of the ancients. But the town of Alore, about four miles to the eastward, is a place of still greater name and age, it was at one time the metropolis of a mighty empire which extended from Cashmere to the ocean, and from Candahar to Kanoje but is "now a humble hamlet with some ruined tombs."*

Cantonment of Sukkur. The cantonment for a brigade of two regiments, on the Sukkur side, is on an inclined plain, a sort of table land, to the north-west of the fort, and about three quarters of a mile distant. The sepoys' lines front to the north, and the officers are located on the eminences to the southward and westward. Though the space is rather small, no other in the neighbourhood combining the advantages of elevation and proximity to water, could have been found for the same number of troops.

The little cones and eminences round camp are covered with tombs and mausolea, many of them of ancient date, and all falling fast into decay.

The hospitals are to be built on an eminence to the north-westward of the lines, and one has been erected there for the Europeans, on a very airy spot well elevated above the surrounding country.

* Burnes.

The river about a mile above the town of Sukkur, and two from camp suddenly turns to the south-eastward, then sweeping round it passes the fort and Roree, gradually turns to the westward and forms a sort of peninsula including the town of Sukkur, the cantonment, and the neighbouring heights. To the westward of camp, there is a strip of alluvium covered with date palms, gradually widening as the river descends, and becoming a considerable grove interspersed with gardens and cultivation irrigated from the river.

The neck or isthmus of the peninsula may be about three or four miles broad, and it is somewhat singular, that the river has never made a breach across, instead of continuing its almost horse-shoe course through the rocky channel between Sukkur and Roree. One small canal, or more properly speaking, water channel, has been cut across for about a mile and a half above the town of Sukkur for the purpose of irrigation, but it is shallow, only filled during the inundation, and is dried up early in September.

Surrounding country, canals, &c. Towards Shikarpoor and about four miles from camp, the country begins to be intersected by water courses and continues so, as far as that town. To the northward of Sukkur, along the banks of the river, these canals and channels are also very numerous. To the southward the country is less broken, the banks are higher, and there is more pasturage and jungle but less cultivation, except on the very verge of the river.

The Scinde canal which opens from the Indus about twenty miles north-east of camp, passes within a mile and a half from Shikarpoor, and extends navigation for several miles, in boats of considerable size, for three or four months in the year; it carries the means of irrigation for the surrounding country during the inundation and finally joins the Nara branch of the river beyond Larkhana. About forty miles beyond Shikarpoor, commences what is called in the maps, the "marshy desert", which extends in breadth about thirty or forty miles, and in length about a hundred and fifty from the Hala range of hills to the bank of the Indus.

I have already mentioned, that the range of hills on which the fortress and camp are placed, is of limestone. It lies in regular strata and in distinct boulders, in some parts has an appearance of having been artificially arranged and is plentifully interspersed with irregular pieces of flint. Unlike that of Lukkee, which abounds in several species of testacea in beautiful preservation, I have found in it no fossil remains.

Soil. The soil in the plain of the Indus in upper Scinde, is a

mixture of clay, micaceous sand, and carbonate of lime; the latter predominates so much at times, as to assume a marly appearance. It contains less vegetable matter than the alluvia of the Delta for obvious reasons; but it is nevertheless, rich; cultivation is extensive and productive, and might by a thicker and more industrious population be rendered infinitely more so.

Produce. Opium, indigo, and tobacco are cultivated but not so extensively as towards Sehwan, and an inferior kind of cotton is grown on the banks of the river, of course by irrigation. Sugar-cane is also common, but it appears, at least in the neighbourhood of Sukkur to be of inferior kind to that of Guzerat and Bassein.

The grains in common cultivation are jowarree, wheat, barley, badjiree and these as to quantity, in the succession mentioned. They are all good of their kind, more especially the two former. The different kinds of vetches are also grown, but less extensively than farther down the river, where large fields of them are very common. The oil plants too, are grown as in all eastern countries.

The gardens along both banks of the river, produce pomegranates, peaches, apricots, and a small species of apple, the three last, and indeed all, of very indifferent quality. Grapes are also grown in season, but of a very indifferent description, and the limes which are common and small are dry, and wanting in flavour. All this inferiority in horticultural produce, is as much owing to want of skill in cultivation, as to climate; and many of the fruits I have mentioned, will no doubt assume a different appearance under the guidance of amateur gardeners, if this long remain a British cantonment.

The country is also miserably deficient in esculent vegetables, and this ought not to be the case, where soil and easy irrigation, afford the means of growing almost every thing common in India; instead of which the whole catalogue consists of cucumbers in season, turnips, tolerably good onions, carrots of a very inferior tasteless kind, brinjals, the toorie, and doodie of India, and one or two bad kinds of badjee. The introduction of potatoes would be a great blessing to the country, and I think there is little doubt of their being readily grown.

Jungle trees. The productions of the jungle or uncultivated part of the country in the neighbourhood of camp, are chiefly tamarisk which extends far and wide, especially to the north and westward; the different species of mimosa (babul most abundant)

and the jowassee or camel-thorn, are every where met with. In the immediate neighbourhood of Sukkur, and on the opposite bank of the river, the date palm is the predominant tree, forming groves on either side, interspersed with the gardens before mentioned, and with patches of cultivation. A few bher and mango trees are here and there interspersed, as well as neem, tamarind, and the mimosa cerissa, which here as elsewhere, is a beautiful, shady tree, though of more stunted growth than in India. Peepuls, I have mentioned, are met with chiefly about the fort and the towns of Sukkur and Roree. The talee tree of which the boats of the counry are built, is a common tree in the jungles of upper Scinde.

Inundation. The inundation, on which so much depends both in a beneficial and a noxious point of view, becomes an important feature in the medical topography of this country. It commences about the vernal and begins to subside a little before the autumnal equinox. For the last two years it has commenced in force, exactly on the former day; and this year, rising in one night to a considerable height, it carried away the remains of a bridge of boats thrown over the river for the passage of the Army of the Indus. After a few days it again subsided considerably and continued to rise and fall till it attained its greatest height in July and August; in the first week of September it began to fall, and to lay bare the flat country previously flooded during the highest inundation. It was very irregular in its risings and falls, often varying several feet in one day and at different periods of the same day.

A very considerable rising was observed in the river corresponding to the full and new moon, during the first three months of the inundation; depending on some lunar influence which caused greater heat, and greater melting of snow at these periods, at the sources of the river.

In the immediate neighbourhood of the cantonment, there is little of the country overflown at any period of the inundation, but a few miles to the northward, it is completely flooded after the first high rise of the river, and the roads continue for months impracticable except for foot passengers. To the south-east and thence to the south-west, ranges the hill I have described, and from Sukkur downwards, the banks of the river are higher, and the country is not so overflown.

The low country between this and Shikarpoor, and all around that town is described as a perfect swamp; while the Scinde canal

formerly mentioned, running near it pours out its water of irrigation and adds to the causes that must render it always an unhealthy place during these months of the year.

The extent of rise of the river during the last inundation, or the difference between the highest flood, as marked on the walls of the Fort and the lowest fall, was fifteen feet eight inches; and this was reckoned an average inundation.

Water of the Indus. The water of the Indus is densely muddy throughout the year, but of course more so during the inundation. The silt when deposited is found to contain silex, alumen, carbonate of lime, and a little vegetable matter, in fact corresponding to the soil on its banks. These vary in proportion at different parts of its course, the silex and carbonate of lime being in greater quantity here than towards the Delta. The vegetable matter in the monsoon is considerable, and the water soon putrifies if left unchanged, emitting a disagreeable odour, and tasting of decomposition. When purified in the usual way, by setting it aside for a day, and then throwing in a few grains of alum to the gallon of water, it becomes clear as possible and is delicious; reminding one of what is said of the sweetness of the waters of the Nile. The natives dislike all purification with alum, and think it unwholesome, but the quantity used is so small, and the greater part of that being decomposed, and thrown down in sediment, it cannot be prejudicial to health, while it certainly improves greatly the quality of the water.

* The quantity of silt I ascertained early in September near the highest rise and most muddy period, in a quart of water to be fifty-one grains and in October at nearly the lowest fall of the river twenty-one and a half grains in the same quantity.

Climate. The seasons are divided here into hot and cold, each lasting half the year and rapidly merging into one another, without any intermediate spring or autumn. March is reckoned the first of the hot months, and October the first of the cold; but in the end of February the temperature rises very high in the middle of the day, as it does throughout the month of October. The nights of both months are however cool. The greatest maximum is in June† (the

* At Hydrabad Lieut. Wood of the Indian Navy ascertained the maximum during the inundation to be fifty-seven grains and the lowest he noticed in September was thirty-one grains in the same quantity.

† The Hospital was removed from tents into a building on the 23d of May.

maxima of April and May in the following table, were taken in tents) and in that month the nights are excessively hot from the prevalent winds blowing over the sandy desert towards Jeysulmere; the thermometer frequently remains throughout the night as high as 96° and only falls a little towards morning.

The prevailing winds during the hot months will be seen from the following table, to be from the southward and westward. Both these and the range of the temperature will be best understood by this abstract.

Months.	Thermometer.				Rains.	Prevalent Winds.
	Minimum during the year.	Maximum during the year.	Mean of daily Minima.	Mean of daily Maxima.		
March	60	104	72	95*	Showers on the 14th &15th	Southerly.
April	61	110	73	103	"	Southerly and Easterly.
May	76	110	81½	103	"	Ditto.
June	85	109½	88	104	"	Southerly.
July	82	104	86	93	Showers on the 15th and 16th heavy rains on the 17th clear on the 18th slight showers again, on the 25th and 27th.	S. Westerly.
August	82	102	85	97	Slight showers on the 12th	S. Westerly.
September	77	100	82	94	Slight showers on the 14th	S. Westerly.
October	69½	96	74	89	"	After the 8 Easterly and N. Easterly.
November	61½	87	65	80	"	E. and N. Easterly.

* This Registered during the last 10 days of March.

Periodical rains, it is well known, never visit Scinde, and the occasional falls with which it is sometimes blessed are few and far between. More rain has fallen this, than in five previous years, yet the whole did not amount to five inches; having no pluviometer I state this by guess, it was however certainly not more. Cultivation is solely dependent on the inundation of the river and if a good fall of rain opportunely happens, it is proverbially said "to rain gold" to the cultivator.

The average heat throughout the season is I believe higher than in any part of India; and there being no periodical rains to reduce the temperature, the continued heat for half the year must be a powerful agent in the production of disease, not only immediately, but also mediately by producing debility and rendering the body more susceptible of the influence of malaria at the end of the hot season. This will of course act more on the unacclimated; and the natives

accustomed to the heat from their infancy, bear it in a most incredible manner.

Upper Scinde is at times visited by severe squalls or more properly speaking whirlwinds during the early part of the hot season, which are truly terrific in their first appearance, though comparatively harmless. They are extremely partial, and extend only for a mile or two in breadth, but apparently sweep for a long distance in a curvilinear direction.

This station was visited by one on the 20th April, about four in the afternoon. Our attention was first attracted by a loud rushing noise like that of an immense cataract, which was immediately followed by darkness and the appearance of a dense cloud approaching us from the south-eastward, rolling in large volumes, and involving the town of Roree, as it were, in utter annihilation. It swept across the river with giant strength, and in one moment almost every tent in our camp was levelled with the ground, and many date trees torn up by the roots. The placid river was lashed into a mimic sea, and the spray was driven to an incredible distance. The dense cloud of dust carried along with the whirlwind, left us in darkness, and objects could scarcely be distinguished by the lurid un-earthly light caused by the sun's rays passing through the dense cloud of sandy dust. It gradually subsided after the first burst, the wind veered from south-east all round the compass, it was all over in about fifteen minutes, and every thing was left covered with dust. It was so partial that a native in a boat about three miles above Sukkur saw the cloud pass over Roree, but felt none of it.

This storm appears to have been of that kind experienced by the army of the Emperor Julian near the Euphrates and like that which sunk the Tigris Steamer in the same river in 1837 with such melancholy loss of life.

Population. The population of upper Scinde generally speaking, is composed of three distinct classes viz. the Scindees, or original Mussulman inhabitants of the country, the Beloochees at different times settled here, and two or three casts of Hindoos chiefly Banians who have been in the country from time immemorial, and are probably the aborigines.

It is not my purpose to describe these different classes further than as regards their health, and the agents that affect it, I shall only therefore briefly mention their different occupations and general modes of life.

The first class comprises the cultivators of the soil, the boatmen on the river, the artisans, and generally speaking all those employed in the more laborious occupations of life. They live on animal and vegetable food, the former in proportion to their ability to procure it, but as it is expensive, fish is more commonly used; this in certain seasons is plentiful and though not high priced, is yet beyond the means of many. Jowarree bread forms the chief article of food among the lower classes, sometimes simply pounded and baked into cakes, and sometimes with a little ghee and condiment; but the former is by much the more common mode, even amongst the most laborious class, the boatmen.

The practice of drinking Bang, an infusion of Ganja leaves (the Cannabis sativa) is very general after a meal of Jowarree bread, and is indeed universal amongst the boatmen who seldom show after its use the slightest appearance of intoxication. It seems to have the same exciting effect as the tobacco hooka which generally follows a draught of this nauseous looking beverage. Notwithstanding this poor food, they are a fine looking, well developed race of men, particularly some of the boatmen whose means and manner of life afford them a little better diet. This class of men labour under the primitive curse of earning their bread &c. in unusual severity; for days they are exposed in tracking their boats, frequently up to the middle in water, with the burning sun over their heads, while the utmost muscular exertion is required to gain way against the current, and often against the wind. Exposure in the cold weather, is not more easily borne, for their occupation in the water at a very reduced temperature, and the cold northerly wind must be a vicissitude not very conducive to health nor very comfortable to their feelings. Their clothing is little calculated to defend them from the heat or cold which are always in extremes. A light Scinde cap for the head, an angreka of cotton cloth, and trowsers of the same material, sometimes a cummerbund, to which is added a cumblie, for the winter months, complete their dress.

The Beloochees settled in Scinde are either employed in the military or police of the country, or cultivate land which has been obtained for such services. They are in general well clothed, are physically a fine race of men, often live beyond the extreme period allotted to man "three score and ten" and are frequently, in such cases, fine specimens of patriarchal old men. On the contrary those who indulge in the immoralities but too frequent in the country, and are addicted to opium, soon give way to the effects of both, and become prematurely old and broken down.

The Hindoos are chiefly employed in trade, in shopping or hawking articles of food or clothing, and the poorer classes are muzoories or day labourers. The richer class who can afford good food and clothing,and who are well housed, are a good looking race ; but the poorer classes are miserable in appearance, pale, sickly, and often showing signs of the full operation of malaria, on an ill fed, ill clothed people. They are not so particular about the nature of their food as their brethren of India, but poverty confines them to the cheapest and the worst.

Diseases among the Natives. The diseases most common among the natives, as might be expected, are fevers and rheumatism; the former occurring at all seasons but chiefly after the subsidence of the inundation of the Indus ; the form is mostly intermittent, hence structural enlargements of the spleen are frequently seen amongst them. These fevers are not considered by the natives as dangerous, and seldom prove fatal unless by inducing enlarged spleen and consequent dropsy or lientery. Remittent fever also prevails in the months of September and October, and in some seasons proves very fatal.

Pulmonic affections in the cold season are very common. Phthisis as far as I have observed, is not a common disease. Dysentery in the early part of the hot season is of frequent occurrence as also other kinds of milder bowel complaint; the latter no doubt owing to, or assisted by the quantities of cucumbers eaten by all classes from the prevailing belief in their cooling qualities, as an article of diet.

I observed a number of cases of Cynanche Parotidæa among the natives in the early part of the hot season, and many of them applied to me suffering from the disease. It was generally mild, and readily yielded to the usual treatment.

The Chronic Rheumatic complaints so frequently met with, are often complicated with symptoms of secondary syphilis, a disease very common throughout Scinde, owing to the low state of morals among all classes, and perhaps rendered more virulent as well as disseminated more widely by the filthy habits of the people.

The epidemic diseases which I have noted, as commonly occurring are small pox, measles, influenza, and cholera ; the first and last have prevailed during my residence in the country, and both in a severe degree. It was impossible to ascertain any correct proportion of deaths from either, but during the prevalence of the latter I was enabled to mitigate the severity of the disease by freely dispensing medicine among all classes in the neighbourhood.

I endeavoured also to introduce vaccination during the prevalence of variola, but without success. We had newly arrived in the country and were strangers to the people, who had not that confidence in us, which they begin now to have and which will soon overcome all obstacle to the introduction of so great a blessing.

I have not observed that great prevalence of diseases of the eye about Sukkur which Dr. Lord mentions as occurring in Khyrpoor; this class of diseases must be more rare in upper than in lower Scinde, as the dust driven about by the wind is very trifling in the former; while in the latter it is almost always blown about in clouds and proves a very common exciting cause.

Diseases of the skin are not so common as might be expected from their filthy houses, clothing and fish diet; I have only met with two cases of Lepra and in these, the attack first commenced in Khorasan.

It may not be out of place here to mentions that there is a species of venomous snake in Scinde, the bite of which is followed by a very fatal train of symptoms. I have not been able to see one, but from its description by the natives, I should suppose it to be the same species of black snake as that found at Balmeer and described by Mr. Forbes in a paper in the second volume of the Transactions of the Bombay Medical and Physical Society. The bite is followed by great nervous depression, deliquium, and sopor; after recovery from which, the patient is affected by passive hæmorrhage from various surfaces and a fever of the typhoid kind.

I have only seen two cases of the bite, one was brought to me about an our after the infliction, and Liquor Ammoniæ was liberally administered till he recovered from the collapse, after which opium and camphor, and latterly tonics completed the cure. This patient passed a considerable quantity of blood by vomiting. The other a child of five years old was brought to me in the state of passive hæmorrhagy and fever, I prescribed, after an aperient, calomel, opium, and camphor; but as he was not brought back, I am ignorant of the result.

The state of medicine and surgery in upper Scinde is at a very low ebb; the lower classes are obliged to trust to any popular remedy, many of which can be had in every Banian's shop. The higher classes have their hakeems and tubeebs, men such as are met all over India, strict followers of the hot and cold system of medicine and diet. Their materia medica appears to be exactly that of the same class of people in India, and their knowledge of disease and success in its treatment are much on a par.

Health of the European Troops. I now come to notice the health of the troops during our residence here and first of the Europeans; but before entering on this subject, it will be necessary briefly to advert to the material of which the detachments were composed, not only to account for the great mortality they experienced, but also to appreciate the effects of climate and exposure on men such as they were. Those composing the details of H. M. Regiments were all either suffering from chronic disease or were so reduced by previous illness as to be unable to proceed with the army; the men of the H. C. Artillery were either sick and convalescent, old or broken down soldiers, or young recruits just arrived in the country. Such men, under the most favorable circumstances, could scarcely be expected either rapidly to recover health, or resist any deleterious influence of climate, and being as they mostly were, of very intemperate habits, these might be expected to act in full force, when indulged in without the possibility of check or control.

On arrival at Sukkur, the tents of the men, for the purpose of shade, were pitched in an open date grove, which afforded every opportunity of introducing the spirit of the country, a most poisonous liquor prepared from dates, sugar and bang. Every exertion was made to stop the sale of this noxious stuff by the officers commanding—but evidently without effect, for constant cases of drunkenness were occurring, and so hardened were the men in their intemperance, that punishment and its example had little effect upon them. As the season advanced and the heat became more intense, cases of illness in consequence of these indulgences, became more common in the shape of fevers, bowel complaints, and one case of delirium tremens. Unfortunately the Engineer, from the scarcity of workmen, was unable to erect barracks; and the men remained in tents till the middle of June, with the thermometer often at 115° at its maximum.

These circumstances of exposure and intemperance in men previously reduced by ill health, added to an occurrence in the course of military duty which I shall presently mention, led to the production of a most fatal train of disease, which I shall now proceed to describe.

In the early part of May, two young men died, one of insolation and the other from remittent fever ending in apoplexy, both traceable to excess and exposure. After this, no case occurred deserving of notice till the beginning of June when it was deemed expedient by the authorities here to send a force against a Beloochee fortress, about 60 miles to the northward of Shikarpoor; a detachment

of artillery under Lieutenant J——, and of Her Majesty's Regiments under Lieutenant C——, in all about forty-five men, were ordered to march on that place on the 2nd of the month. The excitement of this approaching service caused additional intemperance, for some days previous to the march; and on the 2nd the disease broke out in its most fatal form.

On this day, three men were admitted into hospital who died apoplectic after a few hours illness.

On the 3rd. six men admitted, one of whom died in convulsions in the afternoon.

On the 4th. two admitted, one of whom died three days after with cerebral oppression.

On the 5th. six were admitted, one of whom died apoplectic in the afternoon.

On the 6th. five were admitted, one of whom died apoplectic shortly after admission.

After this date, three men were admited all of whom recovered.

The detachment for field service marched at 3 o'clock on the morning of the third, intending to reach their ground about ten miles off, as soon after sun-rise as possible. Most unfortunately Lieutenant C and his detachment fell behind on the road, missed the guide and lost their way. After wandering all night and till noon the next day — they lay down quite exhausted under the shade of some trees. Several men were taken ill and two died before four o'clock, when Mr. C. having been found by men sent out by Lieut. J. was brought to his encampment with his detachment and other two men at the point of death, who soon afterwards expired. Lieut. C. was taken ill himself; and though actively treated, died in convulsions next day—after feeling and expressing himself much better for some hours.

Many of Lieut. J's men had also lost their way and got to their encampment after noon. Two died apoplectic and one was missing and never afterwards found.

Of a detachment of Golundauze fourteen strong, one man was missing and not afterwards heard of, no other was taken ill nor were any of the twenty-four dooly bearers, though much exposed and much worked during three days.

A detachment of the 5th Regiment Native infantry one hundred and fifty strong, following two days afterwards lost two men from apoplexy.

The disease as it presented itself to me, showed either a state of complete apoplexy or of cerebral fever marked by the following symp-

toms. Strong quick pulse, intolerance of light and contracted pupils tumultuous action of the heart, heat of body extreme, as also the extremities; skin arid, and burning to the touch, conveying a sensation never to be forgotten; frequently nausea or vomiting; tongue generally foul; bowels sometimes loose for some days before at other times naturally open; urine high coloured and scanty.

The mental faculties were always clouded, with drowsiness and inclination to constant sleep, the patient only being aroused when shaken or spoken to loudly.

These symptoms, if not boldly combated, ended in apoplexy, and sometimes, notwithstanding active treatment they were followed by this fatal state from which none recovered; nor indeed did any treatment after this appear to have the slightest effect.

Dissection showed invariably more or less congestion in the brain and its meninges; but the degrees were various according to the habit of body and violence of the attack.

In those who died suddenly and where depletion from the state of the circulation could not be effected; in short, in those moribund when brought to hospital, the congestion was always greatest; and in these, was found not only injection of the meningeal vessels, but also of the substance of the brain itself, shown by numerous bleeding points on cutting into it, chiefly in the centrum ovale. In almost all, there was effusion of serum in the ventricles from two to three drachms; and in one, trifling effusion between the dura mater and tunica arachnoidea.

Next to the head the stomach showed most frequently marks of disease, and the lesion consisted almost invariably of spots on the mucous surface, chiefly towards the cardiac extremity, varying in size and of a purple dark colour. In one case it nearly occupied the circumference; in another it was not larger than a shilling. This purple colour was caused by injection of the mucous membrane which was somewhat thickened wherever this appearance showed itself. In only one case did there appear any congestion of the vessels of the external surface of the stomach.

The small intestines of those who had previously had loose bowels, showed some disease; and the mucous coat was slightly suffused in patches, but generally neither jejunum nor ileum showed any appreciable lesion.

In no case was there any remarkable congestion of the liver or spleen.

The exciting cause of this fatal disease was no doubt exposnre to the sun and to high temperature. That heat and atmospherical in-

fluence without exposure, will cause the disease, there can be no doubt, as was proved in two fatal cases in June and July; one man Serjeant F. employed as a writer in the Post Office, and in no way exposed to the direct rays of the sun, and another Corporal S. confined to his cot in hospital by a broken leg; both died apoplectic after a few hours illness.

The great predisposing cause were doubtless the habits of the men; as is proved by its having almost entirely been confined to the European soldiers. No officer and only three sepoys of the Native regiments having been attacked in cantonment.* Another predisposing cause was the weakly state of many of the men reduced by previous disease, almost all having been lately treated in hospital for various ailments.

The treatment pursued was first to relieve the circulation and oppressed brain by copious bleeding from the arm and temporal artery; but this remedy, though so plainly indicated, was not always followed by relief; and after the slightest apoplectic appearance, never. If had recourse to early, it generally relieved all the symptoms; and when followed by topical bleeding the relief was greater and more permanent, unfortunately, however, leeches were very scarce and not procurable at any price; and this was the more to be lamented, for in those cases in which they were used the benefit was evident. Cupping was not so beneficial; cold lotions and the "douche" to the shaved head, were invariably used and were undoubtedly useful. Blisters to the neck and head, sinapisms to the epigastrium and the pediluvium completed the list of local remedies.

Strong cathartics of calomel and colocynth followed by saline medicines and infusion of senna, were invariably administered, but in bad cases the termination was fatal before any operation could take place. Enemata were in many cases useful. When the head and bowels were relieved, diaphoretics of antimonials with the liquor ammon, acet, were sometimes useful in relaxing the skin. After the subsidence of the febrile symptoms, tonics, quinine, &c. were administered and generally convalescence was rapid.*

* Although the native troops suffered little from the formidable cerebral disease that proved so fatal to the Europeans at Sukkur, yet the sufferings of an escort which left our camp on the 18th of May with a Cafila of 4500 camels with treasure and supplies for the army in Affghanistan proved, that they were liable to it under circumstances of fatigue and exposure, to a most fatal degree.

I have little to notice concerning the cholera, which made its appearance in the hospital on the 8th of June, and proved fatal to three men, two of whom got over the collapse, but died after reaction took place, from cerebral symptoms. They were all much reduced by previous disease, two were convalescent from remittent fever.

This escort consisted of a wing of the 23d Regiment, Bombay N. I., about 300 strong, and was joined at Shikarpore by a wing or detachment of a Bengal Regiment of N. I. of about equal strength. Thirteen Europeans accompanied it, viz. eight officers with the detachments including one Assistant Surgeon, two officers proceeding to join the army in advance, two conductors and an European agent with supplies from shops at Sukkur.

The marches were always made at night, and for the most part the escort got to their ground before the morning sun was very powerful; excepting the rear guard which was frequently out till late in the morning. The sepoys off duty were sheltered during the day in rowties and the pals of Bengal. Most of the officers were in good tents; and the conductor and agent in rowties. Supplies were plentiful, but the water was bad particularly at Rajhan. The duties of both officers and men were most harassing from the frequent attacks and threatenings of Beloochee robbers; and the heat was excessive during the day, nor did it fall to any thing like coolness till towards morning.

Soon after leaving Shikarpore sickness began to show itself amongst men and officers; and after the exposure and fatigue of the march across the desert, deaths became numerous; as the escort advanced these increased; and before arrival at Dadur, twelve men of the 23d Regiment, and thirty of the Bengal Regiment had fallen victims to apoplexy, insolation and fever, but the mortality amongst the Europeans was most fearful, viz., two officers, one Assistant Surgeon, both Conductors, and the European agent. Two more officers were most dangerously ill and were only saved by a timely arrival at Peagh where the shelter of a house was obtained for them. Major N. who furnished me with the substance of this note, attributes the greater exemption from mortality of the 23d Regiment to their being supplied, as is the custom of the Bombay army, with canteens of water with which they refreshed themselves on the march, as well as at all times on duty when water could not otherwise have been readily procured.

During this disastrous march the camels suffered even more than the escort; and of 4500 that started from Shikarpore, only 1017 were found by a Committee at Dadur, fit to proceed to Candahar. This is a fearful lesson to deter such another undertaking at that season; and shows in a strong light, the deadly effects of heat during those months of the year.

Major N. mentions that nearly half the detachment of the 23d suffered from ulcers in various degrees, (the ecthyma subsequently alluded to) during their residence at Dadur. These if irritated became troublesome sores; but if left to themselves or treated mildly soon healed without inconvenience.

The other diseases that prevailed at Dadur, were the same as those we experienced at Sukkur, but cases of fever were much more numerous and the visitation of cholera in June was much more fatal.

The most remarkable feature in the cholera as it prevailed in Scinde, was its regular march, stage by stage from Kurachee where it appeared first and proved very fatal to the troops. It was equally fatal in its nature in the towns and villages around us; and Khyrpoor was almost deserted for some time in consequence of the mortality causing a panic amongst the natives. Fortunately it was not very fatal in camp, and passed us over comparatively lightly; neither was it very fatal in the towns of Sukkur or Roree.

In the return for May, there appears one casualty from intermittent fever; the immediate cause of death was a spontaneous rupture of the intestine into the cavity of the abdomen. The man an old unhealthy subject, having previously suffered from fever and dysentery during a residence of thirteen years in India, was admitted with tertian of which he had two paroxysms, and was apparently recovering under the use of sulphate of quinine, his bowels had been rather irregular while in hospital, but not particularly so, and he never complained of abdominal pain. He was suddenly seized with excruciating pain in the hypogastric region, with cold clammy perspiration, weak, almost imperceptible pulse and efforts to vomit; he sank very rapidly and died on the second day. I thought it probable from the man's appearance and former diseases, and the absence of all previous abdominal symptoms, that we should find on dissection an abscess of the liver burst; but this organ was healthy and two small openings were found in the ileum, through which the contents of the intestine had escaped into the cavity of the abdomen.

Dysentery during the early part of our residence here was a common disease, but it was imported with us, for the most part, and I believe only two of the fatal cases were first attacks, and those in men worn down by previous disease. Of the chronic cases some recovered after long illness, but most of those who arrived here very ill, died; nor was this surprising, for no climate could be less adapted for recovery from dysentery than this in the hot months; and indeed it is one of the diseases of that period among the natives of the country.

I have nothing to remark on the treatment of dysentery, as it occurred amongst us, except the entire failure of the ipecacuanha and gentian plan, both in the first attacks and chronic cases, after a careful trial. Not so in the dysenteries and bowel complaints of the native troops in which it proved eminently successful; but of this more afterwards. Nor did mercury after depletion carried to ptyalism always prove successful, one man having died after this was effected; the death occurred after it had run on into a chronic state.

Of hepatitis we had but few cases and none that was not a second attack; one proved fatal from the bursting of an enormous abscess. This patient was received into the hospital boats once or twice on the march up, with symptoms of chronic dysentery from which he apparently recovered, but no doubt, then, the liver was implicated. He was attacked afterwards with symptoms of acute hepatitis, and died of abscess after two months illness, having rallied once or twice in the meantime. The only remarkable symptom in this case, was the very slow and weak pulse, seldom rising above 65, even after unequivocal symptoms of suppuration had taken place. This weak slow pulse continued throughout, till a short time before the patient's death.

Several cases of chronic rheumatism complicated and uncomplicated appear in the returns during the early months of our residence; many of these were either cured or very much relieved by the hydriodate of potass, which I have here as well as elsewhere found an invaluable remedy in such cases. It was particularly useful in those attended with periosteal swellings, where a syphilitic taint in some instances may have existed, or where much mercury had been previously used either in the cure of that or other diseases.

Miasmatic Fever. After the first partial subsidence of the inundation in August, remittent and intermittent fevers began to show themselves, the former in greater proportion. Towards the latter end of the month, several cases occurred with cephalic symptoms that required free depletion both general and local; these means with purging by calomel and colocynth, generally brought about a remission, after which the case yielded readily to the usual treatment.

In September intermittent fever prevailed in far greater proportion, and the treatment became more simple. An emetic on admission, followed by a full dose of calomel, colocynth, and tart. antimon with occasionally leeches to the temples during the hot stage, and afterwards quinine liberally administered during the intervals of fever, in all cases soon effected a cure.

One patient died this month from remittent fever, which proved fatal, not from the severity of the attack in all probability, but from extensive disease of the heart, under which he had laboured for years. The pericardium adhered to the heart by cellular connections throughout its whole extent, the organ itself was hypertrophied and incipient disease of the mitral valves existed.

This cardiac disease seemed to have resulted from a weight having accidentally fallen on his chest some years before and had often

caused him to complain of pain in the chest, and difficulty of breathing. During the fever the pulse intermitted every two or three beats, and continued to do so, till shortly before death.

In October, intermittent fevers continued to prevail, generally however, mild in their attack, and seldom showing great local determination. In only two cases was the spleen the seat of congestion, and in one of these, diarrhœa had for sometime also co-existed.

The treatment pursued was similar to that mentioned for the intermittents of the preceding month; the convalescence was rapid, but re-admissions were frequent, from the weakly state of the men owing to their suffering from former disease. Considering this, I conceive that the attacks were very manageable; and I think that during the whole month, only two cases verged towards a remittent type, one of which was accompanied, or rather followed by Icterus; both however became quotidian and afterwards were readily cured.

Finally throughout these months, quotidian was the most common form of intermittent fever and not one case of quartan occurred.

At the end of October, the detachment of Queen's troops and the invalids of the Bombay artillery embarked in boats for Bombay whither it was deemed expedient by a medical committee to send them, in consequence of their being totally unfit for any service, and their having been constantly liable to recurrence of disease.

In the month of November, among the thirty or forty artillery men and Warrant officers of the ordnance department left at Bukkur, intermittent fever was almost the only disease. One case of rather severe remittent was admitted early in the month, but it readily yielded to treatment; and the intermittents were generally manageable, the patient seldom having more than two paroxysms after admission. Convalescence was rapid, and re-admissions less frequent.

General Remarks. As particular circumstances led to the great mortality amongst the Europeans, (more especially that from cerebral disease,) it would be wrong to form any estimate from that experience, of the effect of the climate on healthy troops in good barracks with their diet and habits carefully attended to; yet I believe the above disease may be considered endemic to the country, and always likely to occur more or less amongst troops and to be the cause of mortality, although the prophylactic means of good housing and careful diet might do much in warding off this, as well as other diseases from which we suffered. Yet the climate which would confine men within doors for eight months in the year during the greater part of the day, and the continued great heat of night as well

as day during at least six months, must necessarily prove most injurious to the health of the European soldier; moreover, the debility and relaxation induced by confinement and want of exercise, must predispose them to be more readily acted on by malaria during the latter months of the inundation. We may therefore reasonably conclude (and our experience goes to confirm the inference) that Sukkur is never likely to be a healthy station for European troops; and most certainly, they never could undertake any active service in the field for at least six months in the year without the greatest risk to life.

Health of the Native Troops. While the European troops were suffering from the formidable disease of the hot season, the Native troops retained a state of healthiness seldom surpassed at any station in India; and only a few cases of apoplexy or insolation occurred among them.* Nor did they suffer from the violent remittent fevers that affected the European soldiers. Diarrhœas and slight dysentery were the most common complaints; these yielded to the simplest remedies, and were no doubt in a great measure caused by the cucumbers eaten in quantity during that season, from an impression of their cooling nature, entertained both by the sepoys and natives of the country.

I have mentioned that in these cases of bowel complaint, the ipecacuanha and gentian proved very successful; and indeed it continued throughout the season to be a very favourite remedy in all cases of dysentery, or that form of diarrhœa, which so often in natives, merges into a dysenteric state.

When cholera passed over us, the Native regiments suffered but little too, and only a few fatal cases occurred.

Towards the end of the hot season, when the inundation began to subside, a number of intermittent fevers occurred, yet of a very mild kind, and most readily yielding to treatment. The form was chiefly tertian, a few quotidian, and still fewer approaching the form of remittent. Few were accompanied by engorgement of the spleen or local determination of any kind.

Now we began to experience the advantage of an elevated position and absence of marsh and stagnant water in the immediate neighbourhood; for while the regiments and detachments at Shikarpoor, the site and surrounding country of which I have alluded to, had a third or more of their strength in hospital, the troops here were remarkably healthy, and had as small a proportion of sick in

* Vide Appendix.

hospital as I have ever seen in Guzerat or even in the Deccan at the same season.

This ought to be borne in mind in the distribution of the Native troops in future seasons, and as small a detachment left at Shikarpoor, as is consistent with the safety of the place. Not only does the country surrounding it plainly indicate its unhealthy atmosphere, but the appearance of the Natives, the frequent structural enlargement of the spleen, and their bloated sallow faces, confirm beyond a doubt, that this is annually a hot bed of fever. Few cases however of the many that occurred at that place proved fatal, but the health of the men was much shattered, and they were long after recovery, weakly, and unfit for any active duty; while, as the cold season approached, they were rendered subject to rheumatism, and bowel complaint, and all the catalogue of sequelæ to marsh fever, as it occurs in all swampy countries.

To return to the troops at this station, the few casualties that occurred and indeed the comparatively few admissions are the best possible proof of our healthy locality for Natives, and that this station as far as our experience goes, is the most likely in Scinde to be lightly visited by the endemic fevers of the country. No doubt bad seasons will occur, as they do in all the marshy countries of India; but the elevation, the absence of marsh or stagnant water in the immediate neighbourhood, whence the prevalent winds blow during the miasmatic months, and the little cultivation in that direction, all render the place more eligible in a medical point of view, as a cantonment than any place I have seen in Scinde; while the sufferings this season at Tatta and Shikarpoor undoubtedly prove its superiority in point of salubrity to these places.

Health of the Officers. It may not be uninteresting to mention summarily the state of the officers during the last eight months, as they may be said in some degree to form a distinct class in a cantonment, and have at all times the greater means of averting the deleterious effects of climate than falls to the lot of the common soldiers and sepoys.

On our first arrival and for a part of the hot season, they were equally exposed in tents as the men, except that the tents were better adapted to keep off the solar heat, and most of them were cooled by tatties. Few got into houses till June and July and many not till later. The effects of the great and long continued heat upon all was remarkable, though none might be said to have actual disease. All complained of anorexia, lassitude, debility, and loss of flesh, while

the least exertion caused profuse perspiration, and the greatest annoyance from prickly heat (lichen tropicus) which every one suffered much more from than at any former time in India.

A few cases of bowel complaint occurred, but not deserving particular notice, one officer of the Bengal army had a relapse of dyspepsia from which he had suffered severely in the upper provinces before and was obliged to go to Simla for change of climate; and one officer of the Indian Navy was obliged to go to the sea-coast after suffering from dysenteric symptoms and intermittent fever, his health having been impaired by a former attack of fever.

In August, September, and October, several cases of fever occurred, in all about twelve, but of the mildest form of intermittent and all yielding readily to the usual treatment; many of the attacks were merely ephemeral, and recovery was generally rapid; only one approached the remittent form, as far as I am aware of, occurring in August and connected with and aggravated by biliary derangement. It was however soon checked, and the officer soon recovered his health and strength.

Surgical cases. In a field hospital it may be expected that something may have occurred amongst the surgical cases deserving of remark; but the wounds, simple incised, and a few gun shot, all terminated favorably and offered nothing worthy of notice. Two bad compound fractures of the bones of the leg, are also progressing favourably, and promise to leave but little deformity or lameness.

On my arrival here, I found a number of bad ulcers amongst some Bengal sick left in hospital, several of them having degenerated into phagedenic sores, and two or three afterwards during the month of August and September assumed the same appearance. One man died from exhaustion and diarrhœa, affected by this ulcer in the nates following a carbuncle. One case is in hospital now, the phagedena having attacked a suppurated bubo in both groins, in an unhealthy state of body. Strong solutions of sulph. cupri. and diluted nitric acid, seemed to have the greatest power in checking the spreading of the sores, while opium and quinine were administered internally, and when diarrhœa supervened, as it often did, absorbent medicines were given, such as pulvis cretæ cum. opio and the like.

Dracunculus was a very common disease, but in all cases imported, I have not seen or heard of its occurring in any part of Scinde as a disease of the country.

Ecthymatous ulcers were very common throughout the season at

Sukkur, but much more so at Shikarpoor and in some detachments on field service. Of a detachment consisting of a Jemadar and thirty men of the 1st Grenadier Regiment N. I. at Rajhan, during October and November, I believe only four or five escaped them. They appear chiefly on the lower extremities, though no part of the body is exempt.

The natives attribute them entirely to the bad water, which might be partly the cause at Rajhan and elsewhere but not at Sukkur where all used the excellent water of the Indus. Bad or improper food and malarious influence (the latter an acknowledged cause) are much more likely to have produced the disease and these apply to wherever it made its appearance.

The treatment consisted constitutionally in cathartics, alteratives and tonics, and locally in washes of solution of nitrate of silver or sulphate of copper with simple dressing. They in general yielded readily to this treatmeut.

The number of deaths throughout the season, in the native general hospital, may be thought numerous; but they are really not so, if we take into consideration, that it was first composed of the sick of the Bengal and Bombay columns; and that at all times the sick of details and detachments of these and of H. M. Shah Soojah's troops, and of commissariat and camp followers to the number of from eight to ten hundred were received and treated there.

Camp Sukkur,
1st. December, 1839.

I. — *General return of European sick in the Field General Hospital, Sukkur, from 1st March, to 30th June, 1839.*

Diseases.	March.						April.						May.						June.					
	Remained on the 1st.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Apoplexia	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	5	5	..	5	..
Ascitis	..	1	1	..	..	1	1	1	2	1	..	1	1	..	1	1	..	..	..	..	..	..	..	..
Asthma	..	2	2	..	..	2	2	1	3	2	..	1	1	..	1	..	..	1	1	..	1	..	..	1
Bronchitis	3	3	6	3	..	3	3	..	3	2	..	1	1	..	1	1	..	..	..	..	..	..	..	..
Bubo Simplex	2	..	2	2	..	..	..	1	1	1	..	.	..	1	1	1	..	..	..	..	..	..	..	..
Catarrhus	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cephalalgia Acuta	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..
" Chronica	..	1	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1
Cholera Spasmodica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	3	..
Contusio	..	..	..	..	..	..	..	1	1	1	..	..	..	1	1	1	..	..	..	..	..	..	..	..
Cynanche Tonsillaris	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delirium Fremens	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..
Diarrhæa	1	2	3	1	..	2	2	8	10	4	1	5	5	5	10	9	..	1	1	1	2	..	1	1
Dysenteria Acuta	..	1	1	..	..	1	1	2	3	2	..	1	1	1	2	..	2	..	..	2	2	..	1	1
" Chronica	5	8	13	5	3	5	5	..	5	3	..	2	2	1	3	2	..	1	1	2	3	1	..	2
Erysipelas	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erythema	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..
Febris Continua	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	2	..
" Remittens	6	2	8	7	..	1	1	2	3	1	1	1	1	8	9	4	1	4	4	22	26	20	1	5
" Intermittens	..	1	1	..	..	1	1	2	3	2	..	1	1	2	3	1	1	1	1	1	2	2	..	..
Fistula in Ano	..	..	..	..	..	..	.	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..
Fractura (Tibiæ)	..	1	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1
Gastralgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..
Gastritis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gonorrhæa	..	..	..	..	..	..	..	1	1	..	..	1	1	1	2	1	..	1	1	..	1	1	..	..
Hepatitis Acuta	1	..	1	1	..	..	..	1	1	..	..	1	1	1	2	..	..	2	2	2	4	3	..	1
" Chronica	5	..	5	3	..	2	2	..	2	..	..	2	2	..	2	2	..	..	..	2	2	..	..	2
Hernia (Scroti)	..	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrocele	1	..	1	..	..	1	1	1	2	2	..	..	..	1	1	..	..	1	1	..	1	1	..	..
Icterus	..	1	1	1	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Iritis	..	..	..	..	..	..	..	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..
Lithia	..	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Opthalmia Acuta	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" Chronica	2	..	2	..	..	2	2	..	2	..	..	2	2	..	2	..	..	2	2	..	2	1	..	1
Otitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pnnitus	..	..	..	..	..	..	..	1	1	..	..	1	1	..	1	1	..	..	..	1	1	..	..	1
Rheumatismus	10	5	15	8	..	7	7	5	12	8	..	4	4	2	6	2	..	4	4	1	5	5	..	..
Scrofula	..	1	1	..	..	1	1	..	1	..	.	1	1	..	1	..	..	1	1	..	1	..	..	1
Splenitis	1	1	2	2	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	1	1	1	..	..
Strictura Urethræ	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Subluxatio	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis Primitiva	..	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcus	2	2	4	1	..	3	3	3	6	2	..	4	4	1	5	4	..	1	1	3	4	..	..	4
Vulnus	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	42	35	77	37	3	37	37	37	74	39	2	33	33	29	62	35	5	22	22	50	72	37	13	22

II. — *General Return of European sick &c., from July to October* 31*st*, 1839.

Diseases.	July.						August.						September.						October.					
	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Apoplexia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ascitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Asthma	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	1	..	..
Bronchitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bubo Simplex	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Catarrhus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cephalalgia Acuta	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	1	1	..	..	1
" Chronica	1	..	1	..	..	1	1	..	1	..	..	1	1	1	2	1	..	1	1	..	1	1	..	..
Cholera Spasmodica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Contusio	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cynanche Tonsillaris	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delirium Tremens	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhœa	1	..	1	..	..	1	1	2	3	2	..	1	1	..	1	..	..	1	1	..	1	1	..	..
Dysenteria Acuta	1	1	2	1	..	1	1	4	5	4	..	1	1	3	4	2	..	2	2	4	6	6	..	..
" Chronica	2	..	2	1	..	1	1	.	1	..	.	1	1	..	1	..	..	1	1	..	1	..	1	..
Erysipelas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Erythema	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Febris Continua	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" Remittens	5	5	10	7	..	3	3	4	7	6	..	1	1	4	5	2	1	2	2	2	4	4	..	..
" Intermittens	..	..	..	..	..	..	..	5	5	2	..	3	3	12	15	14	..	1	1	22	23	20	..	3
Fistula in Ano	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fractura (Tibiæ)	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastralgia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastritis	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gonorrhœa	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..
Hepatitis Acuta	1	3	4	2	..	2	2	..	2	1	..	1	1	1	2	1	..	1	1	..	1	1	..	..
" Chronica	2	2	4	2	..	2	2	3	5	2	..	3	3	1	4	2	1	1	1	..	1	1	..	..
Hernia (Scroti)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrocele	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Icterus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Iritis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lithia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Opthalmia Acuta	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..
" Chronica	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Otitis	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Punitus	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatismus	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	1	1	1	..	..
Scrofula	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	1	..	..
Splenitis	..	1	1	..	..	1	1	..	1	1	..	..	..	1	1	1	..	..	..	..	..	..	..	..
Strictura Urethræ	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Subluxatio	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis, Primitiva	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcus	4	..	4	1	..	3	3	.	3	1	..	2	2	1	3	1	..	2	2	2	4	4	..	..
Vulnus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	22	14	36	18	1	17	17	20	37	21	..	16	16	26	42	26	2	14	14	33	47	42	1	4

III. — — *General return of European sick &c., for November* 1839, *with grand total from* 1st *March.*

Diseases.	November.						Grand Total.					
	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained on the 1st March.	Admitted.	Total.	Discharged.	Died.	Remaining on the 29th Nov.
Apoplexia	..	..	..	..	..	..	..	6	6	..	6	..
Ascitis	..	..	..	..	..	..	..	2	2	2	..	..
Asthma	..	..	..	..	..	..	..	3	3	3	..	..
Bronchitis	..	..	..	..	..	..	3	3	6	6	..	..
Bubo Simplex	..	..	..	..	..	..	2	2	4	4	..	..
Catarrhus	..	..	..	..	..	..	..	1	1	1	..	..
Cephalalgia Acuta	1	..	1	1	..	..	..	3	3	3	..	..
" Chronica	..	..	..	..	..	..	..	2	2	2	..	..
Cholera Spasmodica	..	..	..	..	..	..	..	3	3	..	3	..
Contusio	..	..	..	..	..	..	..	3	3	3	..	..
Cynanche Tonsillaris	..	..	..	..	..	..	1	..	1	1	..	..
Delirium Tremens	..	..	..	..	..	..	..	1	1	1	..	..
Diarrhæa	..	..	..	..	..	..	1	18	19	17	2	..
Dysenteria Acuta	..	..	..	..	..	..	..	18	18	15	3	..
" Chronica	..	..	..	..	..	..	5	11	16	12	4	..
Erysipelas	..	..	..	..	..	..	..	1	1	1	..	..
Erythema	..	..	..	..	..	..	..	1	1	1	..	..
Febris Continua	..	..	..	..	..	..	..	2	2	..	2	..
" Remittens	..	2	2	1	..	1	6	57	51	52	4	1
" Intermittens	3	10	13	10	..	3	..	55	55	51	1	3
Fistula in Ano	..	..	..	..	..	..	..	1	1	1	..	..
Fractura (Tibiæ)	..	..	..	..	..	..	..	1	1	..	1	..
Gastralgia	..	..	..	..	..	..	..	1	1	1	..	..
Gastritis	..	..	..	..	..	..	..	1	1	1	..	..
Gonorrhæa	..	..	..	..	..	..	..	3	3	3	..	..
Hepatitis Acuta	..	..	..	..	..	..	1	8	9	9	..	..
" Chronica	..	..	..	..	..	..	5	8	13	12	1	..
Hernia (Scroti)	..	..	..	..	..	..	..	1	1	1	..	..
Hydrocele	..	..	..	..	..	..	1	2	3	3	..	..
Icterus	..	..	..	..	..	..	..	2	2	2	..	..
Iritis	..	..	..	..	..	..	..	1	1	1	..	..
Lithia	..	..	..	..	..	..	..	1	1	1	..	..
Opthalmia Acuta	..	..	..	..	..	..	..	1	1	1	..	..
" Chronica	..	..	..	..	..	..	2	..	2	2	..	..
Otitis	..	..	..	..	..	..	..	1	1	1	..	..
Pneumonia	..	..	..	..	..	..	1	..	1	1	..	..
Punitus	..	..	..	..	..	..	..	2	2	2	..	..
Rheumatismus	..	..	..	..	..	..	10	15	25	25	..	..
Scrofula	..	..	..	..	..	..	..	1	1	1	..	..
Splenitis	..	..	..	..	..	..	1	5	6	6	..	..
Strictura Urethræ	..	..	..	..	..	..	..	1	1	1	..	..
Subluxatio	..	..	..	..	..	..	1	..	1	1	..	..
Syphilis Primitiva	..	..	..	..	..	..	..	1	1	1	..	..
Ulcus	..	..	..	..	..	..	2	12	14	14	..	..
Vulnus	..	..	..	..	..	..	..	1	1	1	..	..
Total	4	12	16	12	..	4	42	256	298	267	27	4

IV.— *General return of Native sick in the Field Hospital, Sukkur, from 1st March, to 30th September, 1839.*

Diseases.	March.						April.						May.						June.						July.						August.						September.					
	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Asthma	..	7	7	4	1	2	2	..	2	..	..	2	2	..	2	..	..	2	2	2	4	1	..	3	3	..	3	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	2	1	1	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cephalalgia Acuta	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1
Cutaneous Diseases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	1	1	..	..
Cynanche Parotidea	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	2	..	..	..
Diarrhœa	..	12	12	11	..	1	1	2	3	3	..	..	..	3	3	..	..	3	3	8	11	8	..	3	3	11	14	10	1	3	3	19	22	13	1	8	8	9	17	16	..	1
Dracunculus	..	3	3	.	..	3	3	..	3	..	..	3	3	1	4	4	..	..	..	..	..	..	..	..	..	13	13	6	..	7	7	4	11	6	..	5	5	9	14	6	..	8
Dropsical affection	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysenteria	..	15	15	10	2	3	3	..	3	..	..	3	3	3	6	4	..	2	2	..	2	..	..	2	2	..	2	1	..	1	1	..	1	..	..	1	1	..	1	..	1	..
Dislocatio	..	2	2	1	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Elephantiasis	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fractura Complex	..	1	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	1	2	..	..	2
Febris Remittens	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
„ Intermittens	..	30	30	20	3	7	7	7	14	7	..	7	7	17	24	14	..	10	10	8	18	6	..	12	12	11	23	16	..	7	7	12	19	14	2	3	3	63	66	46	..	20
Hepatitis Chronica	..	1	1	..	..	1	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hœmorhoides	..	2	2	1	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	1	2	1	..	1	1	..	1	..	..	1	1	..	1	..	..	1
Inflammatio External	..	1	1	1	..	..	..	..	..	..	..	..	..	2	2	1	..	1	1	2	3	2	..	1	1	11	12	7	..	5	5	7	12	8	..	4	4	7	11	9	..	2
Mania	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1
Opthalmia Acuta	..	4	4	2	..	2	2	..	2	1	..	1	1	..	1	1	..	..	..	1	1	..	..	1	1	3	4	1	..	3	3	..	3	1	..	2	2	..	2	..	..	2
Phthisis Pulmonalis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Paralysis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatismus	..	35	35	22	..	13	13	3	16	4	.	12	12	7	19	10	1	8	8	1	9	3	..	6	6	9	15	9	..	6	6	2	8	4	..	4	4	3	7	2	..	5
Syphilis Primitiva	..	8	8	5	..	3	3	..	3	1	..	2	2	1	3	2	..	1	1	10	11	2	..	9	9	18	27	14	..	13	13	5	18	11	..	7	7	4	11	3	1	7
„ Second	..	..	..	..	..	..	..	1	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	..	1	..	..	1	1	1	2	1	..	1	1	..	1	..	..	1
Ulcus	..	17	17	6	..	11	11	..	11	1	..	10	10	9	19	6	1	12	12	3	15	3	..	12	12	..	12	7	..	5	5	1	6	2	..	4	4	..	4	3	..	1
Varicla	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vulnus	..	10	10	5	..	5	5	3	8	4	..	4	4	6	10	5	..	5	5	3	8	6	..	2	2	2	4	1	..	3	3	2	5	1	..	4	4	2	6	..	..	6
Total	..	151	151	91	6	54	54	16	70	23	..	47	47	54	101	52	2	47	47	43	90	33	1	56	56	79	135	76	3	56	56	54	110	61	3	46	46	102	148	88	2	58

V. — *General return of Native sick, for October and November* 1839, *with grand total.*

Diseases.	October.						November.						Grand Total.			
	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.	Admitted.	Discharged.	Died.	Remaining.
Asthma	..	..	..	..	..	..	..	3	3	1	..	2	12	8	2	2
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	4	2	2	..
Cephalalgia Acuta	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Colica	1	..	1	1	..	..	..	..	..	..	..	..	1	1	..	..
Cutaneous Diseases	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Cynanche Parotidea	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
Diarrhæa	1	13	14	7	..	7	7	8	15	9	2	4	85	77	4	4
Dracunculus	8	4	12	5	..	7	7	7	14	8	..	6	41	35	..	6
Dropsical affection	..	..	..	..	..	..	..	1	1	..	..	1	1	..	..	1
Dysenteria	..	.	..	..	..	..	..	..	..	..	..	..	18	17	1	.
Dislocatio	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..
Elephantiasis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Fractura Complex	2	..	2	..	..	2	2	..	2	..	..	2	2	..	..	2
Febris Remittens	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
" Intermittens	20	92	112	79	1	32	32	90	122	66	1	55	330	268	7	55
Hepatitis Chronica	..	..	..	..	..	..	..	1	1	..	..	1	2	1	..	1
Hæmorhoides	1	..	1	..	..	1	1	1	2	..	..	2	4	2	..	2
Inflammatio External	2	1	6	5	..	1	1	7	8	6	..	2	41	39	..	2
Mania	1	..	1	..	..	1	1	..	1	..	..	1	2	1	..	1
Opthalmia Acuta	2	1	3	..	..	3	3	..	3	..	..	3	9	6	..	3
Phthisis Pulmonalis	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
Paralysis	..	..	..	..	..	..	..	2	2	1	..	1	2	1	..	1
Rheumatismus	5	5	10	6	1	3	3	6	9	4	..	5	71	64	2	5
Syphilis Primitiva	7	10	17	11	..	6	6	6	12	3	..	9	62	52	1	9
" Second	1	..	1	1	..	..	..	..	..	..	..	..	2	2	..	..
Ulcus	1	6	7	1	1	5	5	9	14	4	..	10	45	33	2	10
Variola	..	..	..	..	..	..	..	..	..	..	..	..	4	4	..	..
Vulnus	6	7	13	7	..	6	6	1	7	3	..	4	36	32	..	4
Total	58	142	200	123	3	74	74	142	216	105	3	108	783	654	21	108

* The sick of details of the 1st Grenadier and H. M. Shah Soojah's Provincial Battalion were admitted into hospital this month from Shikarpoor.

Article II.

Notes on the Medical Topography of Tatta on the river Indus with a short notice of the diseases which prevailed in the 22d Regiment N. I., when stationed at Tatta or in progress up the river Indus in boats, during the months of August, September and October 1839. By J. Inglis, M. D.

Presented by the Medical Board, February, 1840.

The town of Tatta situated in latitude 24° 44″ north, and longitude 68° 15″ east, is built on a mound of small elevation in the centre of the alluvial plain of the river Indus and about three miles inland from the right or western bank. It is very little elevated above the level of the sea, from which it is distant about seventy miles in a straight direction, though much more by the windings of the river.

Tatta is surrounded on all sides by low grounds which during the inundation are irrigated for cultivation. About a mile to the west of the town a ridge of limestone hill elevated about eighty or an hundred feet above the level of the plain, runs for three or four miles in a direction from north to south. To the eastward the ascent is rather precipitous, and the general range of the hill is very irregular, forming many projecting points, between which, the indentations during the rains and inundation are filled with water, and either form extensive tanks or are used for rice cultivation. But during the dry weather the water becomes quite brackish, and is entirely dried up before the return of the inundation. In consequence of the decomposition of animal and vegetable matter the effluvia is intolerable.

To the westward the descent is more gradual to another plain of great extent which is also irrigated by canals cut from the Indus.

The hill is formed almost entirely of limestone, chiefly in the form of conglomerate at the surface, resting on hardened clay of a yellowish colour ; but in some directions a coarse grained sandstone can be seen at the bottoms of the ravines.

The surface of the ridge is generally flat and smooth, hard and dry, but with an inclination towards the north and west such as to prevent the rain resting on it for any time. It was densely covered with cactus or prickly pear ; this has been cut down in every

place near the camp, but in all other directions a great quantity still remains. It is the only jungle that I know of for a considerable distance from the cantonment, for only a few other shrubs and bushes and stunted babul trees are to be seen growing on the hill.

On this ridge the camp was formed fronting to the west and from its elevated site, and the general appearance of the country, for every thing was dry and there were no signs of swampy grounds; it promised to be a much more healthy place than it has turned out to be.

Towards the end of May the inundation from the river ascending in canals cut for the purpose of irrigation came up to the low ground both to the east and west of the cantonment, filling all the tanks and low grounds in the vicinity. To the eastward a bund was thrown across between two projecting points of the hill so as to confine the water for use during the dry weather, but time was not afforded for deepening it and a good deal of long rank grass grew up near the edges. In another part behind the lines of the 26th regiment between two other projecting points of the hill, the water collected in considerable depth and the cultivation of rice was carried on in it; long rank grass and other vegetation being also luxuriant.

But I believe, that it is not to these sources we are to attribute the great unhealthiness of the cantonment, as the wind never for an instant blew from that quarter; but that we must look to the westward for the cause of all our troubles. In that direction the ground is equally low with that to the eastward, and forms an extensive plain for many miles, irrigated by canals from the Indus. In many parts, the rain which fell chiefly in July, uniting with the waters of the inundation collected and formed extensive swamps; one of these about a mile or two to the west of the camp had much the appearance of a lake after a heavy fall of rain, but in the end of August and September it began to dry up and as the wind never ceased blowing day or night from west and south-west until the 9th October, it is I think fair to infer that all the malaria must have come from that quarter.

Some gentle rain fell on the 19th February, and a very violent storm of thunder, lightning and rain, took place on the 19th March. On the 20th April it was cloudy with thunder and every appearance of rain but none fell in camp.

The monsoon rains fell chiefly in July when there were seven days on which it rained, one drizzling shower in August and two days rain in September and in this consisted the whole monsoon.

To us who are accustomed to India, the monsoon at Tatta appeared a very slight one; the rain, although sometimes rather heavy, falling only for a few days at a time, with weeks of intervening dry weather, but the natives of the place declared it to have been the heaviest that had happened to them for many years. Not being provided with a pluviometer, I am unable to say what quantity of rain fell, but do not suppose it could have exceeded eight or ten inches.

Winds. Strong cold bleak and dry northerly and north easterly winds prevailed from November until March; after which they almost uniformly blew very strongly both day and night from the west and south-west bringing with them clouds of dust; with the exception of a day or two at a time occasionally during the hot months when a hot dry wind blew from the north and north-east.

Thermometer's lowest range at sunrise in January, February 43° to 68° highest, during the day 75° to 88° in March to April at sun rise 50° to 74° highest during the day, 90° to 111° May and June lowest, 75° to 86° highest during the day 90° to 112° during that period the sick were in tents, but removed to the temporary hospital on the 10th June. In July, August, and September, lowest range at sunrise 74° to 88° highest 79° 100°.

Meteorological Register of the 22d Regiment Bombay N. I. at Tatta and on the Indus, for the Months of August, September, and October, 1839.

	Extreme Minimum.	Extreme Maximum.	Mean of daily Minima.	Mean of daily Maxima.	Observations.
August	81	93	82	89	The weather has been uniformly cool and pleasant during the month, the mornings being cool and generally cloudy, midday heat moderate, with cloudy and sunshining intervals, and high wind, nights were remarkably cool with steady fresh south west and westerly breeze; atmosphere moist; no rain fell. Wind S. and S. W.
September	76	92	78	89	Mornings, evenings and nights, were cool and pleasant and generally cloudy with occasional high blustering wind; midday heat rather oppressive at times and sometimes cloudy with high wind and clouds of dust. Heavy fall of rain and squalls on the nights of the 14th and 15th with thunder and lightning. Wind S. W. and W.
October	61	94	74	90	Mornings and evenings were cool and pleasant with dense fog in the mornings and heavy dew during the nights; middays calm and sultry and occasionally cloudy whilst at Tatta from 1st to the 14th, and on the Indus mornings were much cooler and chilly, midday heat more oppressive, clear and calm. Wind S. W. and W. latterly variable and from the Northward.

State of health of the 22d regiment. With reference to the state of health of the 22d Regiment N. I., during the months of August, September and October, it may not be unnecessary or uninteresting to premise, that with the exception of cholera, which prevailed in March and carried off a good many patients; and also a few other cases of the same disease in subsequent months; the regiment has been comparatively healthy since we came to Scinde in January last. The daily average number of sick about thirty-three when the whole regiment was at head quarters, and many of these were of local complaints which might have occurred in any country. With the exception of cholera, only one casualty occurred under my charge, and that from remittent fever previous to the 1st August, and another from the same disease when the left wing was at Baminakote under charge of the Assistant Surgeon there. Some severe and dangerous cases of remittent fever and pleuritis had taken place; but all with the exceptions above mentioned yielded to the treatment adopted.

On the recession of the inundation and the partial drying up of the swampy ground above alluded to, disease in the form of fever (generally intermittent,) began to make its appearance about the 20th of August, but it was not until the middle of September and October, that it prevailed to the fearful extent it did. The greatest number of patients in hospital at any one time, was on the 4th October, when it amounted to 237, besides 57 convalescents. After that they diminished gradually and the disease declined day by day whilst we remained at Tatta.

During August, September, and part of October, the regiment was stationed at Tatta, but at the beginning of the latter month, notwithstanding the great sickness and my representation that we ought to remain quiet till November, we were ordered to be in readiness to embark on the Indus for Bukkur whenever boats were procured, leaving the sick and weakly men behind. On the 12th, the regiment marched to the bunder and having embarked, sailed on the 15th, leaving behind, 170 sick in hospital, and 22 convalescents and unfits.

Many men who were anxious to accompany the regiment were permitted to do so, although considerably reduced in strength by previous fever. I have since had reason to regret having acceded to their wishes, as a number of them have had relapses, and besides, the two casualties which have taken place since we came into the boats, several others have been at the point of death.

Intermittent fever. It would be superfluous in me to give a detailed statement of the symptoms of a disease so well known in India as intermittent fever, and which has been described so often and so much better than I can possibly do it; suffice it to say that the intermittent at Tatta differs little from that which prevails endemically in Guzerat at the termination of the monsoon. The greatest difference I could observe, was that, when the disease first broke out the paroxysm was not ushered in by so severe nor so long continued a cold fit as in the Guzerat fever; latterly the cold fit in a number of patients has been violent and of considerable duration. The disease in by far the greater number of cases, was of the quotidian type, in some a kind of double quotidian, a regular paroxysm occurring in the day and another during the night. Hitherto there have been few instances of tertian fever, and I have only seen one quartan and that lately, but I have no doubt that later in the season these forms of fever will become more numerous, indeed the cases of tertian are already increasing, especially among those who have relapses.

The total absence or slight degree of cold fit, the double quotidian, and the few cases of tertian and quartan seem to indicate a disease of a more violent nature than that of Guzerat; one more nearly approaching the remittent form. And I have never seen intermittent fever reduce the strength, and the general appearance of the patients so rapidly and so completely as the present one.

Treatment. The method adopted was on admission to prescribe an emetic of ipecacuanha with antim: tartarizat: followed by a purgative or what is equally effectual, as it acts in both ways, is an ounce of magnesiæ sulphas with one grain of antimon: tartarizat: a fever pill consisting of calomel with pulv: antimon: was given twice or three times daily, but it was seldom found necessary or advantageous to affect the system with mercury; and in only a few instances was it carried to the extent of causing the gums to swell, but I invariably use it, having so long experienced its beneficial effects in fever. Should the tongue continue foul and loaded, a purgative must be administered every other day or the calomel and pulv: antimon: in small doses be given, in powder which generally operates both as an emetic and purgative, and seldom fails to bring the tongue to its natural appearance.

Various other purgatives were given and sometimes conjoined with small doses of antim: tartarizat: and saline and diaphoretic draughts also, during the accession of fever. Decoct: et pulv: cin-

chonæ, infus: gentianæ comp: or infus: cheryatæ were always prescribed as tonics. Bleeding was had recourse to in several instances where the paroxysm was severe, and invariably with the greatest advantage, as it always diminished the length both of the cold and hot fit; but generally speaking it was not required. Quinine the only really efficient anti-periodic was reserved for the worst and most obstinate cases, as although tolerably well supplied with it, I had not a sufficient stock to give to all where there were so many patients; but have no doubt that if a sufficient quantity of that invaluable medicine to treat every case of intermittent, were supplied to regimental hospitals, that many lives would be saved, and many men preserved to the service whose constitutions are completely broken by a long course of fever.

In all obstinate and severe cases, quinine was given in doses of five or six grains once or twice, a short time before the expected accession of fever, and with almost uniform success. But it requires to be continued for some time at each returning period; otherwise the disease is apt to come on again, and the same course must be again pursued.

Remittent fever. Has been much more frequent and of a greater degree of intensity and more malignant nature than I have ever seen it amongst natives in the Guzerat fever, and in most of the cases it has been in young men, Mahrattas who have lately joined the regiment, and who never were in Guzerat. Nearly all the casualties have taken place amongst them and in some of them in a very short period after admission. One died in forty eight hours and another, since we left Tatta, in twenty-seven hours after I first saw them, but from the symptoms and their general appearance on admission, I am certain they must have been labouring under the disease for some days previously; but from the well known character for falsehood among natives, it was impossible to get at the truth. The older sepoys have generally had it as an intermittent.

It is not common to find a native present himself to his medical attendant immediately at the commencement of any disease, it is therefore difficult to enumerate the symptoms from the beginning. Few of them have complained of a sense of coldness or shivering; on the contrary the skin has been above the natural standard, dry and harsh without any tendency to moisture; the tongue rough and furred, of a brown colour, dry and hard like a piece of board, or loaded in the centre with the edges and tip of a red colour; intense thirst; irritation of the stomach, with nausea and vomiting of all

liquids swallowed; the pulse quick small and contracted; great restlessness and jactitation; bowels generally costive; urine scanty and high coloured. No complaint was made of pain in the region of the liver (though jaundice has not been uncommon) and only occasionally in other parts of the abdomen. A slight remission of all these symptoms occasionally took place, but without any regularity; and the disease continued for days without much alteration.

In some cases it was complicated with inflammatory action in the thoracic viscera, inducing cough and dyspnœa; but by far the most frequent complication was with an inflammatory affection of the brain, almost approaching to meningitis. In these cases, in addition to the symptoms above enumerated, there is a wild and stupid staring appearance of the countenance, inability to answer questions correctly; the pupils at first generally contracted and obedient to the light, latterly dilated and fixed; great anxiety and nervous agitation and excitement; tremulous motion of the fingers and tongue; subsultus tendinum; frequently jaundice; followed by drowsiness, insensibility, stertorous breathing, involuntary stools, coma and death. In some, there have been short bursts of outrageous delirium.

Treatment. In the cure of remittent fever the lancet was generally had recourse to, once or twice and sometimes more frequently, particularly if there was any complication and the blood exhibited the buffy coat; but in general, natives do not stand free blood-letting well; leeches to the temples and blisters to the nape of the neck or if requisite all over the head, are most valuable remedies.

Strong purgatives, particularly mercurial ones must always be given; and I generally prescribe calomel and pulvis antimonialis, in considerable doses, twice or three times daily. Diaphoretic draughts with antimonial wine were always administered, with the view, if possible, of exciting perspiration, and in the complication with pectoral inflammation, the antim: tartarizat: in doses of two grains every second hour with a small quantity of tinct: morphiæ muriat: I have found a valuable medicine.

Whenever a distinct intermission or even a proper remission can be observed, quinine ought to be given in large doses, as by it another accession of fever may be prevented and the life of the patient saved.

I have not been able to ascertain correctly what number of those who were left behind at Tatta have died, but it must have been considerable, as the disease is said to have increased much in virulence and fatality after we came away; so much so, that the greater part

of the troops is said to have moved on to Garrah as being a more healthy place.

Fever in Europeans. The number of European officers in the regiment being so small as to amount only to eleven there have been few of them affected with the disease. Two officers having a strong tendency to intermittent fever had it in that form, but were easily cured by the usual remedies, with quinine as an anti-periodic. In almost every other European attacked it has been in the remittent form. One officer was attacked with remittent fever just as we left Tatta, was sent to Karrachee, and eventually to Bombay. Another has had remittent fever since we have been in the boats, brought on in a great measure by exposure to the sun. The fever itself was not well defined consisting of alternate flushes of heat and rigors, the surface continuing constantly above the natural standard, the pulse quick and full; tongue loaded, great sense of debility and severe head-ache.

A single copious bleeding from the arm together with purgatives and mercurials soon effected a cure.

In treating Europeans labouring under remittent, I consider a full and copious bleeding indispensable and that, early in the disease; otherwise the cerebral affection which is always more or less present is so insidious that it may have proceeded to an incurable state before these active measures are resorted to. Leeches to the temples or cupping the nape of the neck, with blisters all over the head are most useful and ought never to be dispensed with, where there is much cerebral affection. I seldom give an emetic, as the stomach of the European is so irritable that it is difficult to allay it when once excited. Active purgatives must never be omitted and calomel with pulv: antimon: so as generally to affect the system, but that effect is not easily induced, as the constitution is with great difficulty brought under the influence of mercury, in a case of pure remittent.

Whilst the above report was in progress and since we left Sehwan on the 1st. November I have had a severe attack of remittent fever which rendered me incapable of performing my duty for many days; and will I trust be accepted as a reason for the imperfect manner in which the report has been made out, and the delay that has occurred in sending it in. An officer of the artillery who accompanied us, has also been dangerously ill with remittent, but is now fortunately in a convalescent state.

Both of us I have no doubt caught our fevers from the malaria generated on the banks of the river.

The accompanying return shows the actual state of the regiment in regard to health during the three months.

CAMP SUKKUR,
1st. December, 1839.

I. *Return of diseases in the 22nd Regiment Bombay Native Infantry stationed at Tatta and while in progress in boats up the Indus for the months of August, September, and October, 1839.*

Strength of the Regt.		Anbustio.	Bubo.	Cholera Biliosa.	" Spasmod:	Contusio.	Cutis Morbi.	Diarrhœa.	Dracunculus.	Dysenteria Acuta.	Elephantiasis.	Exostosis.	Febris Remittens.	" Intermittens Q.	" " Tertian.	Furunculus.	Hemorrhois.	Mania.	Oculi Morbi.	Phlegmon.	Pleuritis.	Pneumonia.	Rheumatismus.	Syphilis Primit:	Ulcus.	Vulnus.	Total.
Strength of the Regt.	August .. 849 September 872 October . 868																										
Remained in Hospital 31st July 1839.		:	:	1	:	:	3	3	:	2	1	1	2	—	—	3	:	1	:	1	1	:	2	1	:	:	—
Admitted	August	1	2	1	1	1	5	6	1	1	:	:	3	38	3	7	1	:	1	:	:	2	1	3	:	6	83
	September	2	:	:	1	1	3	2	:	3	:	:	8	286	1	8	:	:	2	1	:	:	3	:	:	2	323
	October	1	1	:	:	2	:	2	:	:	:	:	15	203	1	1	:	:	:	:	:	:	2	:	:	:	226
		4	3	2	1	4	11	13	1	6	1	1	28	531	6	19	1	1	3	2	1	2	14	1	5	8	669
Discharged	August	1	1	2	:	1	6	8	1	1	:	:	4	28	2	7	1	:	:	:	:	1	5	:	1	6	78
	September	1	:	:	:	:	4	3	:	4	:	:	2	119	:	8	:	1	2	:	:	:	6	1	3	2	159
	October	1	:	:	:	1	:	:	:	:	:	:	2	195	:	2	:	:	:	:	:	:	:	:	:	:	201
		3	1	2	:	3	10	11	1	5	:	:	8	342	2	19	1	1	2	2	1	2	11	1	4	8	438
Deceased	August	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	September	:	:	:	:	:	:	:	:	:	:	:	1	1	:	:	:	:	:	:	:	:	:	:	:	:	1	2
	October	:	:	:	:	:	:	:	:	:	:	:	3	1	:	:	:	:	:	:	:	:	:	:	:	:	4	
		:	:	:	:	:	:	:	:	:	:	:	4	2	:	:	:	:	:	:	:	:	:	:	:	:	7	
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Left at Tatta on the 13th October 1839		:	2	:	:	:	1	:	:	1	1	1	9	149	:	2	:	:	1	:	:	:	2	:	1	:	170
Remaining in Hospital at the Head Quarters on the Indus 31st October 1839		1	:	:	:	1	:	2	:	:	:	:	7	38	4	:	:	:	:	:	:	:	1	:	:	:	54

Article III.

Annual Report of the Native General Hospital at Bombay, for the year 1838.*

Presented by the Medical Board, May 1840.

General Observations. The patients admitted during 1838, exceed those admitted during 1837 by one hundred and eighty-four, while the number of deaths falls short of that of 1837 by forty-seven, making the proportion of casualties for 1838, six per cent less than that of the preceding year, and two per cent less than that of any former year during the last ten; as will be apparent from the subjoined abstract of the annual movements of the inmates of this institution since the commencement of 1829. six months subsequent to the introduction of the present system of hospital supply.

Years.	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838
Remained on 31st Dec. of the preceding year	27	25	35	43	35	41	65	53	63	72
Admitted during each year.	319	405	576	546	684	730	806	885	1255	1439
Discharged.	252	316	492	446	534	568	658	697	982	1203
Died in Hospital	71	79	98	113	144	141	160	178	264	217
Remained on 31st Dec. in each year. . . .	25	35	43	35	41	65	53	63	72	91
Rate of Mortality per cent in each year. .	Rather more than 20 ½	Rather less than 18 4-11ths	Rather more than 16.1-25th	Rather more than 19.1-5th	Rather less than 20.1-36th	Rather more than 18.5-12ths	Rather more than 18.5-8ths	Nearly 18.19-20ths	Nearly 20.1-33rd	Nearly 14.9-25ths

The numbers of miserable objects in the very last stages of destitution, picked up in the streets and brought to the hospital by the Police, have been even greater than in former years, and the classes of cachexia, diarrhœa and dysentery consist in great part of such; while the increased number of wounds and accidents, and numerous cases of poisoning included in "other diseases" sent by the civil

* *Note by the Secretary.* This report and that for 1839 are the official documents transmitted annually to the Medical Board in accordance with the regulations of the service, by Dr. McLennan, Surgeon to the hospital.

power, constitute the most marked change in the character of the sick of the past year.

I have been in medical charge during nine out of the twelve months, and consequently shall only advert to the numbers treated in that period.

Apoplexy. One case fatal eight hours after admission, notwithstanding repeated general and topical blood letting; application of cold to the head; sinapisms to the extremities, and administration of drastic purgatives, &c. &c.

Asthma. Five cases of the spasmodic form of the disease treated successfully in the manner detailed in former reports.

Cholera. Fifteen admissions; five deaths. Of the ten cases successfully treated, only one was recent and afforded fair chance for much being done; of the others, four were admitted in a state of stupor and helplessness arising from affection of the brain, for them mercurializing the system and the external application of blisters were had recourse to; of the remainder this state supervened in three, and was similarly treated, and two others were cases, of long continuance of the symptoms of collapse. Wallace's aromatic mixture, laudanum, ammonia, pills of calomel and opium, blisters to the epigastre, and sinapisms to the extremities, with the external application of heat constituted the remedies employed. Of the fatal cases, one was moribund, and another died in less than two hours after admission. One, in a very old Christian occurred in nine hours and was attributable in some measure to diarrhœa which had been present for some time before the disease assailed him. One died in thirty-six hours who had rallied considerably, and at one time seemed in a fair way of recovery. Another, a girl ten years old admitted in an advanced stage rallied, but likewise sunk suddenly on the second day, and like the other without the superinvention of diarrhœa or any urgent symptom.

Cutaneous Diseases. Sixty-six admissions; two deaths. Herpes, eight; scabies, thirty-nine; varicella, four; ecthyma, three; lepra, ten; psoriasis, two. Regarding these I need only remark that the cases of varicella occurred in March and April, when variola was prevalent, and there seemed no reason to think, though they differed from those borne under that name in the returns in the absence of suppuration and of secondary fever, and in the earlier occurrence of

desiccation, that they were not of the same essential nature and produced by the same contagious influence as variola. The cases of ecthyma were of the acute form and were treated by general blood letting, antimonials, mercurial purgatives and cold applications. Of the fatal cases one of lepra occurred on the seventh day from weakness and old age, and the other sunk from hemorrhage from sores on the arm which resisted styptics of every sort.

Cachexia. Forty-nine admissions; thirty-four deaths; of these five occurred the day after admission, five on the second day, three on the third day, five on the fifth day, three on the ninth day; and of the others even, many were found on the roads in a hopeless state of destitution. For such cases, stimulants and when diarrhœa was present, sulphate of copper and opium constituted almost all that could be done. One had a cœcal fistula which on the post mortem examination was found not to be direct, but to have communicated with a cavity, apparently the cyst of an abscess in the muscular parietes of the abdomen. Several had purulent expectoration and might with propriety perhaps have been classed as Phthisis; many were cases reported to have arisen from the sequelæ of fever, and of those some died from ulceration of the intestines, but the greater number of this class recovered under the use of the sulphate of copper and opium two or three times daily in doses of from half a grain to one and a half grains of the former, to nearly an equal quantity of the latter. Two were cases of mercurial cachexia, and recovered under the administration of arrack, opium and ammonia.

Diarrhœa. Seventeen admissions; seven deaths. Of these two died on the second, one on the fifth, and one on the sixth day, Another admitted labouring under the local effects of a mercurial course, sunk from the irritation caused by gangrene of the cheeks and lips. *Treatment.* Sulphate of copper and opium and stimulants internally; and nitric acid, chloride of soda, and balsams &c. locally. Two others of long standing in old subjects became anasarcous before death.

Of the successful cases, four were treated by ipecacuanha in large doses, combined with opium, assafœtida and blue pill; two by opiates, absorbents and astringents, in different forms and combinations: three by sulphate of copper and opium, and two by the external repeated application of blisters, and the internal administration of bitter infusions.

Dracunculus. Cases of, for the most part admitted during the rains.

Dropsical affections. Twenty admissions; five deaths. Of these one occurred on the third, and another on the eighth day, and the three others at longer intervals, all having been reported to have had their origin in long continued fever, and all having been complicated with organic abdominal disease. In these cases arrack with spiritus æther: nitrici and other diuretics, constituted all that was done. Of those terminating successfully, eleven were cases of general anasarca and two of ascites — treated by general blood-letting, purging by elaterium, cremor tartar: in large qnantities daily, and combinations of squills, calomel or blue pill and digitalis at bed time. One case of ascitis, in an old Portugnese, which by these means had been almost cured, has since then retrograded, and he is now sinking from debility having entirely lost his appetite, and being supported by arrack and other stimulants.

Dysentery. Seventy-one admissions; twenty-six deaths. Of these two occurred on the day after admission, five on the second and seven on the fourth day; of the remainder two died in whom numerous hepatic abscesses were found. Two in whom ulceration of the colon had perforated the intestine, and in many of the others whose bodies were permitted to be examined, organic disease of long standing was disclosed. Sulphate of copper with opium was the medicine most generally given in these cases; its power in restraining purging is very great, and it consequently is in very general use for these lamentable cases of disease. Of the successful cases, twelve have been treated by topical blood-letting and ipecacuanha, &c., on Mr. Twining's plan, but without the interposition of purgatives; twelve by general and local blood-letting, blisters, and the induction of mercurial action; eighteen by the administration of sulphate of copper and opium; two of colonitis by general blood-letting and mercurial purgatives, and one by opium and liquor calcis. Recent cases in which the febrile symptoms were slight, were mostly treated on the first plan; those of longer standing in which there was much abdominal tenderness, and high febrile action mostly on the second and cases of long continued disease in which the intestinal discharges were copious and incessant, mostly on the third.

Dislocations and sprains. Three; one sprain of the ankle, one dislocation of the humerus into the axilla, and one of the carpal bones backwards.

Fractures. Fifteen admissions; three deaths. Of the latter all were cases of compound fracture of both bones of the leg. Two declined to have amputation performed and a third who consented, died three hours after its performance. In this case the tibia and fibula were completely comminuted from about six inches below the knee by the fall of a beam of wood. The accident occurred at six A. M. but the man was not brought to hospital till sunset, and was then in a state of exhaustion, from which opiates and stimulants failed to rouse him, and as a last resource, amputation was performed; yet though not a spoonful of blood was lost, he did not rally, but sunk at nine P. M. Of the successful cases, two were compound and three simple fractures of both bones of the leg. In one of these latter which was long disunited, amputation was performed at the urgent request of the patient. Three were fractures of the forearm: two of the ribs. One of the metacarpal bone of the middle finger in which amputation was performed, and one transverse of the patella.

Fevers Remittent. Sixty-three admissions; eleven deaths; of these one occurred on the second, two on the third, and three on the fifth day, two others admitted in a state of extreme debilty, died from effusion into the chest. Two who had been a long time ill from extensive ulceration of the intestines, and an emaciated old man from pulmonary disease attended by purulent expectoration. Of those who died soon after admission, two were supposed to have had hepatic abscess though their friends declined to permit the bodies to be examined. The treatment in those cases varied according to the circumstances in each but was necessarily almost entirely palliative.

Of the successful cases, in thirty-four, the head bore the onus of disease; in sixteen there was gastric and in two pulmonic complication. Blood-letting general and local, application of cold to the head, and at times of cold sponging to the surface generally; antimonium tartarizatum in liberal doses every second, third, or fourth hour, and occasional laxatives, with in the severe head cases, the induction of mercurial action, and in all as the symptoms of local excitement yielded or disappeared, quinine or bark, constituted the treatment employed.

Fevers Intermittent. Forty-nine admissions; of these twelve were tertian, thirty-seven quotidian. An emetic on admission, repeated doses of an emetico-purgative mixture on the following day; one large dose of quinine either followed by similar, or smaller to break the recurrence of the paroxysm, and thereafter bark in powder with mild

laxatives, constituted the treatment. Many of these cases were severe, calling for the use of blood-letting both general and local, and required quinine in large doses before their progress was arrested. Narcotine was tried in several with a good effect.

Gonorrhœa. Twenty-four admissions; in seven complicated with phymosis, in two with paraphymosis. Two cases required general blood-letting, antimonials, and mercurial fumigation.

Hepatic affections. Acute, thirteen admissions; two deaths. Chronic; eight admissions; three deaths. Abscess was the cause of death in all, which in two cases occurred on the second day, in two on the fourteenth, and in one on the seventeenth; two of those were Hindoos, two Mussulmans, and one a Christian. Of those cured, seven were cases of jaundice in which ol: tiglii as a purgative was found very useful. The others require no notice.

Inflammations external. Thirty-six admissions; two deaths. One from extensive abscess of the back on the sixth day, and another from cachexia, arising from general glandular disease. Of those cured, ten were cases of affection of the upper extremities; five of the lower; three of abscesses in the axilla; one of abscess about the scapula from a gunshot; one of abscess of the back. Three of inflamed testes; five of cynanche tonsillaris, and eight of buboes, &c.

Inflammations cephalic. One case fatal on the fourth day the patient having ailed for a week previously with what his friends described as fever. Leeches, cold to the head, drastic purgatives, and blisters to the nape, and chest, were the means employed. Inspection of the body disclosed traces of intense inflammation of the membranes of the brain, with the effusion of much serum within the skull, in the spinal cavity, and likewise in the lateral ventricles, which contained about eight ounces of a yellowish fluid.

Inflammations thoracic. Twenty-four admissions; six deaths of these one of pneumonia on the second day, two of bronchitis on the fourth day and two at later periods. In these, antimonium tartarizatum in large doses, and mercury internally with the view of affecting the system, together with blisters externally were the means had recourse to. One case of tracheal phthisis nine months ill, was treated by mercurials and anodynes but as was expected without averting the fatal issue. Of the cases sucessfully treated, six were

pneumonia and twelve bronchitis; antimonium tartarizatum with or without general blood-letting and blisters were the means employed.

Inflammations abdominal. Five admissions; two deaths; of these one from peritoneal inflammation arising from cystitis, admitted in a hopeless state of disease, and the other from gastritis of seven days standing, the sequela of fever. Of the successful cases one of gastritis and four of gastro-enteritis. Repeated topical blood-letting fomentations, mild laxatives and hydrarg: c. creta and hyosciamus with in two cases the application of blisters to the abdomen, constituted the treatment.

Affections of the urinary organs. Four admissions; one death in an old emaciated pensioner from strictures and catarrhus vesicœ. Cures, three cases of stricture.

Mania. Four admissions; one death from debility in an old subject who had frequently been in hospital before.

Ophthalmic affections acute. Eight to six of conjunctivitis cured by topical blood-letting, antimonials, and mercurializing the system, with the external application of ext: belladonnœ;

Chronic. Eleven admissions. One death from small pox with which the patient (affected with ulcer of the cornea) was attacked in hospital. Cures three of ulcer of the cornea, four of granulated eyelids, two of tarsal inflammation, and one of nebula.

Phthisis pulmonalis. Eleven admissions; nine deaths; one on the second, one on the fourth, two on the tenth, one on the fifteenth, one on the twenty-seventh day, and others at longer periods. Palliatives only employed of which the sulphate of copper and opium to restrain the colliquative purging were found the most efficacious.

Rheumatism. One-hundred and thirty-three admissions; six deaths. Regarding these I need only remark, that two died on the fifth, and two on the tenth day, and that of the others, one died from purging, and one from inanition having long lost all desire for food, and been supported by arrack and opiates; all six were very old men. Of these cured twenty-four were cases of acute and one-hundred and three of chronic disease. Of the latter a large proportion were in

addition to any other means that were used, extensively blistered by lunar caustic which has been found very useful in these cases. Extractum hyosciami (prepared in the Deccan) in combination with pulv: ipecacuan: has answered admirably as an anodyne diaphoretic. The only other circumstance requiring notice has been the very frequent occurrence of rheumatic, and catarrho-rheumatic ophthalmia. In these cases the attacks have been severe, not metastatic, and have invariably required the system to be affected by mercury before they have yielded. Blisters behind the ears, solution of caustic to the eyes and ext: belladonnæ to the eye-brows and eye-lids have been the external applications used. The acute cases of rheumatism have been cured by bleeding general and topical nauseants, colchicum and mercurials. The chronic on the system detailed in former reports.

Spleen. Four cases treated successfully in the manner already often mentioned.

Syphilitic affections primary. Sixty-five admissions; six deaths. Of these one on the eighth day was produced by an injudicious mercurial course in the bazar, the others were cases of subjects broken down by dissipation and disease; for these opiates, wine quinine and sarsaparilla &c., were given but most of them sank ultimately under diarrhœa and irritability of the stomach. *Secondary.* Seven admissions, one death from mercurial cachexia. Obstinate ulcerations about the toes and near the anus occurred in several of these cases. Treatment both of primary and secondary syphilis as already detailed in former reports.

Small pox. Thirteen admissions one death from the confluent form on the eighteenth day of the disease, and seventh day after admission. In this individual a great portion of the cuticle over the body was abraded; stimulants, diet and dressings merely used. Of the others the majority have been Portuguese, and have been affected in the months of May and June as has often before been reported.

Ulcers. Seventy-nine admissions; four deaths, one from sloughing of the pudenda from mercury on the fifteenth day after admission, one from blistering by marking nut oil in an old dropsical subject. One from ulceration about the pudenda of long standing in a phthisical patient, and one from extensive ulcerations over both lower extremities of two years duration the effect of syphilis and mercury.

This subject was much emaciated, and was worn down by diarrhœa and sleepless nights, which even the most powerful opiate did not remove.

Of the remainder, twenty-nine cases of simple ulcer, fourteen of irritable, sixteen of sloughing, sixteen of indolent: total seventy-five. These require no further remarks.

Wounds and accidents. One-hundred and fifty-nine admissions; nine deaths, being one third more than in any former year.

Of these	Admitted.	Died.		Admitted.	Died.
Injuries of the head....	20	4	Contusions.		
Penetrating wounds of			Of parties knocked		
thorax.....	4	,,	down and run over		
of abdomen.....	5	3	by buggies and horses	31	1
Punctured wounds of			Beaten by clubs &c...	23	,,
extremities....	3		Falls from on horseback, and from masts,		
Incised wounds of			trees, &c.....	26	,,
trunk	4		From articles falling		
extremities	15		on them.....	13	,,
Lacerated wounds of					
neck	1				
axilla	1				
trunk	3				
extremities	10	1			

Injuries of the head. All the fatal cases were instances of fractures of the base of the skull, in three produced by falls while in a state of drunkenness, and in a fourth from being knocked over by a horse running at speed. In one, death occurred in two, in another in four, in a third in thirteen, and in the fourth in fourteen hours. In none was there any great displacement of the bones, and in all the fractured parts were the same — the parietal and petrous portions of the temporal bones. Hemorrhage from the ears occurred in all, and from the nose likewise in two of the cases. Immense effusion of blood both between the dura mater and skull, and between the dura and pia mater, had occurred in all. In three of the cases there was likewise much engorgement of the vessels of the head generally.

A fifth case of injury of the head in a Parsee terminated fatally soon after the man's removal from hospital. In this instance the fractures were in the upper part of the cranium, the result of blows by a club and the man lived for about forty-eight hours.

Of the successful cases, four were instances of concussion of the brain and twelve of lacerated wounds of the scalp; for these, general and local blood-letting, cold applications to the head and mercurial and saline purgatives and antimonials were employed,

Penetrating wounds of the thorax. Four, all occurring in Portuguese from stabs by daggers or knives in drunken quarrels; active depletory measures saved all.

Penetrating wounds of abdomen. Five admissions; three deaths, of these two affected the chest likewise, and in both the stomach and diaphragm were perforated; death arose from internal hemorrhage. The third case too, sunk from hemorrhage, in him there was no wound of the chest, but considerable protrusion of the omentum and perforation of several folds of the small intestines.

In the two successful cases there was great protrusion of the omentum, and the inflammatory symptoms ran high, but were combated by profuse bleeding both general and local.

The fatal case of lacerated wound of the extremities arose from tetanus, and that borne "contusion" was the result of being knocked over by a buggy; death occurred in twenty-six hours after admission, and it was then ascertained that the individual must have been long suffering from abdominal disease, for the whole contents of the belly were found massed together by inflammation, while much effusion of pus and serum had taken place into its cavity; the colon internally was likewise ulcerated through its whole extent. Of the lacerated wounds and contusions many were severe, but all did well under strict antiphlogistic treatment.

Other Diseases. One hundred admissions; nine deaths. Of these have been

	Admitted.	Died.		Admitted.	Died.
Scurvy	12	1	Debility	2	,,
Palsy	17	3	Diseased elbow joint	1	,,
Tetanus	5	3	Dyspepsia	6	,,
Ptyalism	1	1	Fistula in perineo	1	,,
Poisoning	12	1	Hemorrhoids	3	,,
Drunkenness	4	,,	Hydrocele	2	,,
Scrofula	6	,,	Hemeralopia	2	,,
Colica	3	,,	Ranula.	2	,,
Caries of jaw	1	,,	Polypus of the ear	1	,,
Contraction of joints	2	,,			
Contraction of mouth	1	,,		100	9
Constipation	17	,,			

Scurvy. Twelve admissions; one death on the fifteenth day in a very debilitated subject. In this case, anasarcous swelling of the lower extremities was present to an unusual extent, and required the frequent evacuation of the serum by punctures. The other cases have been severe, and have in most been attended by a very obstinate itch. Treatment as often detailed in former reports; opiates necessary to check the diarrhœa, and to procure rest, have very often brought on ptyalism.

Palsy. Seventeen admissions; three deaths; all cases of hemiplegia. One occurring on the second and another on the eight day; in the latter case repeated topical blood-letting blisters to the spine and drastic purgatives employed; the third case sunk from old age and dropsy.

Of the others, six were cases of hemiplegia, four of paraplegia, and four of partial paralysis. The administration of nux vomica has answered better in the past, than in former years, particularly in cases of paraplegia and in those of hemiplegia in which the motor nerves only were affected. It has been given in large doses, but it has often been found necessary to interrupt its administration for a time in conseqence of the painful muscular contractions that have been excited. These have been complained of so much by several patients that it has been found necessary in these cases to desist from its use altogether; but it has in seven patients produced perfect restoration of the power of the affected parts.

Tetanus. Five admissions; three deaths. One a woman on the day after being brought to the hospital; in her case, the disease followed attempts to produce abortion. Another, in a man fifteen hours after admission; dracunculus in the foot was the cause in his case. A third found lying on the road on the fifth day after the commencement of the disease lived for five days, and seemed at one time much better, and as if he were surmounting the attack; a sudden recurrence of spasms however cut him off. In all these cases, and in the two which were cured, repeated cupping at the nape, and along the spine, blisters to the same parts, purgatives, mercury, and opium in large and frequently repeated doses were the means employed. In one of the successful cases, a woman with lacerated wound of the scalp who was five weeks in hospital, it was found for a long time impossible to diminish the opiate, as a threatening of return of the spasms was the invariable consequence. Salivation was produced in this case, and in the other which was cured.

Ptyalism. One case from mercury brought from the bazar, death produced by sloughing of the mouth on the third day.

Poisoning. Twelve admissions; one death, all produced it is believed by datura, and all followed by the same train of symptoms, delirium, restlessness, incoherent muttering, grasping at spectra, and great muscular debility. This latter in the mildest cases always caused staggering and very often perfect inability to stand or sit. With these symptoms were generally combined great dilatation of the pupils, much heat of head, and frequently of body generally, and quick full pulse. They for the most part terminated in profound sleep. The stomach-pump was used in several cases, and ipecacuan combined with carbonate of ammonia was found to be the most certain and efficacious emetic. Blood-letting was not had recourse to, but the affusion of a column of cold water upon the head from a considerable height was never neglected. The fatal case was admitted in a moribund state.

Drunkenness. Four cases similarly treated.

Scrofula. The long continued internal use of hydriodate of potass, and tinct: iodine was productive of great benefit in several obstinate and old cases of great glandular enlargement about the neck.

Contraction of the mouth. From mercury; in this case, the mouth would not admit a common sized quill. The cartilaginous ring surrounding this orifice was removed, and the opening made of such size as to allow solid food to be taken.

Debility. Two cases from excessive blood-letting. *Hydrocele.* Two cases cured by iodine injections. The other diseases do not call for any remark.

Number of Sick.

Remained 31st December 1837	72
Admitted in 1838	1439
Discharged	1203
Died in Hospital	217
Remaining 31st December 1838	91
Average daily number of Sick for the year	82$\frac{2}{7}$
Died without receiving medical treatment	8

Bombay, 15th January, 1839.

Article IV.

Catalogue of Articles of the Materia Medica of Europe and India, found at Aurungabad and in its vicinity. By A. Walker, M. D.,

Presented March, 1840.

Notwithstanding, the works of Ainslie and Royle, together with the papers published from time to time in the medical journals of this country, have laid open to the profession almost all that is really valuable of the materia medica of India — something yet remains to be done, that the localities of the different remedies may be known and that some classification be adopted with respect to them. The difficulty of transport in this country and above all the extreme liability that vegetable substances have to spoil, whether from decomposition or the inroads of insects, make the first important; while the loose information often given by natives and their necessary ignorance of medical science, call for some arrangement whereby the efficacy of their remedies may be tested.

In the following pages an attempt is made to arrange in accordance with the natural system of Botany, as lately laid down by Dr. Lindley, * the medical plants of a portion of the peninsula of India usually esteemed the most barren and least productive. To describe the country about Aurungabad in all its relations to soil, climate, geological structure and physical geography, would be out of place here. Suffice it to say, the soil is of two descriptions, one the regur or cotton soil extending from Adjuntah to Rozah, on which are grown the garden produce mentioned below; the other or stiff dry soil composed of the debris of the trap rocks, varied according to the source from whence it may have been derived, being harder and drier, with lime when an amygdaloid has been decomposed, simpler and less rigid where a rock of indurated clay has been wasted.

Tabular trap hills surround Aurungabad on three sides, and a plentiful supply of water is thence obtained to irrigate at all seasons

* Natural System. 2d Edition.

the low lying gardens of the city; these hills rise to the height of from three to five hundred feet above the plain which is itself fifteen hundred feet above the level of the sea. A belt of bluff black rock usually occurs half way up the sides of these heights; on each side of which, trees of a stunted growth and under-jungle flourish. The few full grown trees are found on the rich black soil, or in and about the well watered grounds of the city.

The climate is chiefly characterized by its extreme dryness for at least eight months of the year, from October till June, when the rains, often partial, begin to fall; the average of the last years has been only twenty-two inches. A fortnight after the last shower has fallen, all verdure disappears giving place to the brown dried up vegetation of the plain or the black charred coating of the hills from the burning of the grass.

The stately tree of the jungle is no where to be met with in these parts, nor is the rich luxuriance of tropical vegetation often seen; yet the following catalogue will shew, that the Capital of the Deccan and its precincts are sufficiently rich in what appertains more particularly to our subject — the articles of the materia medica, whether of Europe or India.

The articles marked thus (*) are mentioned by Dr. Ainslie,* and to that work reference may be made for a description of their properties; for generally speaking, I have avoided as much as I could, repeating what has been detailed in a work so well known. The Mahratta names of the substances are taken partly from Colonel Sykes' statistics of the Deccan, partly from information derived on the spot.

The usual division according to the three natural kingdoms has been adopted.

Animal Kingdom.

Certain animal substances have from the earliest periods been esteemed powerful remedies; the story of the cure of Tobit's blindness in the Apocrypha, being sufficient to shew how soon the notion of their efficacy was prevalent. A confused idea, that dead animal matter when taken into the stomach had the power of imparting to the living body, qualities inherent in itself while alive, appears to have been the source of a multitude of vagaries on this subject.

* Materia Medica of India.

Doubtless a few of them have a determinate action on the living body, but in most cases they will be found to act indirectly through confidence or disgust, and one can easily credit in the efficacy of an electuary of cockroaches as a diaphoretic in cases of lock-jaw, among the eastern Africans.* When every pharmacopæia in Europe within the period of a life time, teemed with articles of this nature, and when "your toad, your crow, your dragon, and your panther," were held in esteem as medicines at the time that Sydenham wrote, it can be a matter of no surprise to find them in abundance in the materia medica of this country. To enumerate many of them would be but to make out a list of the ingredients of Hecate's cauldron, truly a work of supererogation, when we have Shakespeare's spirited inventory of its contents.

By discovering to us the proximate principles of animal matter. Chemistry has rendered obsolete, as medicines, the greater proportion of these substances. Correcter views of physiology too, have farther contracted their number and abated their importance. †

* *Ovum.* The oil of the egg after being separated, is rubbed in by the natives in cases of stiff joints from gout or rheumatism.

* *Mel.* Three species of bees according to Colonel Sykes, afford wax and honey in the Deccan.

* *Antelope cervicapra.* (Cuvier). The antelope is found on the plains near to this; the chemical properties of its horns differ in no respect from those of the stag, which still maintain a place in the pharmacopæias of London and Edinburgh.

* *Meloe Cichorei.*

* *Meloe Trianthema.* Both these species of meloe are found in this neighbourhood during the rains and particularly at their close; the former on the flower of the *touraee* (*Cucumis Acutangulus*) the latter on the ear of the Indian corn. On the leaves of the cucurbitaceous plants cultivated in the dried up nullahs and rivulets, a species of beetle nearly allied to the meloe is found, but its vesicatory powers are feeble and uncertain.

* Captain Owen's Narrative.

† As among the ancient Greeks, animal substances are principal ingredients in love potions, charms and other superstitious inventions; and a Jones would find on these grounds, ample reason to extend the parallel of the gods of the two countries to many of their prevalent rites and customs. The chief venders of such nostrums are a set of peripatetic quacks who make their appearance periodically, and whose impudence and effrontery nothing can match save the credulity of their dupes.

6. * *Hirudo Medicinalis.* The leech is said to abound in jheels, nullahs and tanks, all over India; this is one of those sweeping assertions that in reference to this part of the country must be taken with some reservation, both according to my own observation and to the fact, that leech-breeding is pursued as a profitable vocation throughout the country, a circumstance not likely to happen if the animal was so rife; the method of breeding is similar to that detailed by Dr. A. Gibson. *

Mineral Kingdom.

The geological formation here though rich enough in earthy minerals, is deficient in metallic with the exception of iron which is well known to constitute a constant, though ever varying ingredient of volcanic rocks. The following productions and two of these factitious, are the only articles of the materia medica belonging to this kingdom, that I have found in the western part of the Nizam's territory.

* *Potassæ Nitras — Shorah.* Saltpetre exists, or rather, is produced in various parts of the country about Aurungabad, and is separated from the soil at a village called Chandah on the Ahmednuggur road, but to no great extent. For the production of saltpetre the presence of some mineral containing potash as felspar, zeolite or mica, to furnish the alkali, and carbonate of lime together with an open, but not too free communication with dry atmospheric air, are requisite. This will explain an apparently singular circumstance which occurs at this station, with regard to the different qualities of the water of the wells, some being brackish and some sweet within a very short space of each other and at the same depth from the surface. It is well known to geologists that the different species of trap rock are found constantly passing abruptly into each other; that the simple indurated clay becomes a porphyry and the porphyry an amygdaloid within a yard. Now, if in either of the two kinds of rock last mentioned, both of which occur where the cantonment stands, carbonate of lime should occur either amorphous or crystallized, all the circumstances required for the production of saltpetre are present, and a brackish water is the necessary result of sinking a well (the potash being furnished by the felspar of the porphyry, and by the felspar, zeolite and mica, of the amygdaloid.) This explanation tallies with the opinion of the natives on the subject, who always draw an unfa-

* Bombay Medical and Physical Transactions. Vol. 1st.

vourable augury of the qualities of the water, when in sinking a well, they come upon crystallized carbonate of lime. As a corallary to this, it is evident that boring in the simple rock offers the greatest probability of a good water.

* *Potassæ Carbonas.* Carbonate of potass is produced by burning several kinds of vegetable substances, but chiefly the stems of the plantain. (*Musa Sapientum*) and collecting the ashes. As formerly among ourselves, the natives attach different qualities to the salt according to the vegetable from which it is derived, the ashes of the plantain and horse-radish tree being deemed as different as were of old, the salts of the broom and willow. In the preparation of some of their mineral remedies as Ruscapoor (an impure kind of calomel,) &c. the native pharmacy which is akin to that of the Chinese, though rude and needlessly expensive is not wholly unsuccessful. The propensity however, that the native doctors have to give Mithridates is such that out of the sheer necessity of contracting their bulk, they are obliged to subject many of their vegetable remedies to the action of fire, little imagining what a caput mortuum remains in their crucibles. From this cause, carbonate of potass is a much more frequent medicine among them than they reck of.

* *Sodæ Murias.* The salt soil of the Berar valley, as indicated by the water of the wells, extends sixty-five miles in length from Oomrowtee to Punchgowen, and thirty-five miles in breadth from Kapoostulnee to Akolah. A waving line drawn through these places, will shew its extent, and include an irregular ellipse of which the river Poornah forms the conjugate diameter. Throughout this region, the wells are more or less impregnated with salt, and the soil barren or fertile, according to the quantity of the mineral with which it may abound; producing in some parts luxuriant crops, while in others the hardiest weed cannot flourish. In such situations as the latter, the mineral is in sufficient quantity to repay the labour of its manufacture, and here accordingly we find it prepared. After the rains, propitiatory sacrifices being first offered to the gods and the genii loci, a well from eighty to a hundred feet is sunk; the water from which, is drawn up and allowed to evaporate in reservoirs prepared for its reception.

So little care is bestowed by the manufacturers, that the article which they prepare, besides containing proportions of muriate of lime and other deliquescent salts, so abounds with earthy matter as to constitute its moiety. The consequence of which is, that during the rains, the salt unless kept carefully dry, runs off in a fluid state, leaving a mass of tasteless mud behind; the Scriptural allusion to salt having lost its savour would appear to have this fact for its point. The

Jews, an inland people, and at one time totally excluded from the importation of bay-salt by the barbarous policy of one of the Antiochi, would naturally turn to the salt soil and lakes of their own country to supply themselves with this necessary of life, and would produce it as impure as the koonbees of Berar.

* *Sodæ Carbonas.* This salt the natron of ancient naturalists is found in the salt soil of Berar and also at the lake of Loonar, the margins of which are encrusted with it in the hot season. Its use in the arts and in pharmacy is well known. It is also employed as a condiment by the poorer classes in lieu of common salt, a similar use to which it is put by the Indians of the llanos of South America, as we are told by Humboldt.

* *Ammoniæ Murias — Nowshadur.* Found in brick kilns after the bricks are burnt.

* *Calcis Sulphas — Selenite.* Found in the salt soil of Berar, when powdered it is applied to foul ulcers, and is used as a desiccative in cases of violent perspiration.

* *Calcis Carbonas — Chuna.* Found abundantly in the trap rocks, in various states of aggregation from a soft friable earth to the crystallized carbonate, it forms also often an ingredient of the soil. There is a species of limestone seen in the nullahs, in boulders near Ellichpoor, so hard and close grained as to approach marble, indeed if the common rule that all limestone that will take a polish merits the name of marble, it is in fact so; for more than one of the figures in the Jain temples at Mookhtagerry, in the vicinity of Ellichpoor, are clearly cut out of this stone.

Slaked lime formedinto a paste, is used by the natives as an application in bruises.

Vegetable Kingdom.

" The plants, flowers and roots, of this country, (says the author of the Ayeen Akhberry) that are used for food and applied to medicinal purposes are innumerable; it is said if you take a leaf from every tree they will amount to six maunds." This statement although it may require abatement to rescue it from the imputation of a mere eastern hyperbole, conveys no inapt idea of the varied profusion of the Indian vegetable kingdom, viewed solely in its relation to the economical purposes of diet and medicine. With regard to the former it is difficult to say, which to admire most — the locust appetite of the people of India for every green thing or the " dura ilia " that can turn

to account the bitterest and most nauseous herbs. Well might the disciple of Loyala, exclaim "I thought that gall had been confined to the animal creation, but I find that the vegetables of this country possess it in abundance."*

The following catalogue is confined to the medicinal plants growing in the neighbourhood of the cantonment and city of Aurungabad. Unless particularly mentioned, they are to be understood as being found within a circuit of twelve miles of these places and none are inserted that have not been examined and identified. By ransacking the shops of the punsaries and attars many more articles might have been added to the list; but the design being to point out the productions of a particular part of the country as connected with the medical art, and not to furnish a Hindoo materia medica — the indigenous or cultivated plants have been alone noted.

In the descriptions of the powers ascribed to the different remedies, attention has been paid rather to popular information than to the opinion of the professed Hakeem or Beyd. From the former source, although we must be prepared for much error and absurdity; we have at least simplicity and an absence of a disposition to impose. We cannot expect either the one or the other, from the latter † with whom a simple is a despicable thing, and whose position and interest must ever lead to habits of falsification and deception.

We are told by Pennant that the bear is reckoned by the Kamskatkhans, their great master in physic and surgery, and that they carefully observe the herbs he has recourse to when sick or wounded. We have a nobler animal than the bear to observe, yet the hint the Kamskatkhans give us, is worthy of attention. "It‡ were better (says Sir Wm. Jones) "to find certain accounts of a single leaf and berry than to be acquainted with the most elaborate compounds, unless they too, have been proved by a multitude of successful experiments."

Ranunculaceæ. *Clematis Gouriana.* (Roxb). Employed by the natives as a vesicatory, for which its congeners are used all over Europe. It is possessed also of purgative properties.§ Ratier regrets

* Lettres Edifiantes et curieuses, Tom. xi.

† This as for as my experience goes, which has been limited to the western portion of the Deccan, a part of India notoriously rude and ignorant.

‡ Asiatic trans. Sir Wm. Jones, 2d annual address.

§ Dictionnarie de Medicine et Chirurgie.

The following has been found to be an excellent application in ophthalmia take a masha (grs. xv.) of opium, one masha of resotta (a resin-colophony?) and five grains of alum; pound and mix the ingredients in water to the consis-

that the clematis should have fallen into such neglect as a medicine, and attributes it to the undue praises of Stoerk.

Delphinium Staphysagria. (Lin). Cultivated in the gardens of Mussulmans, solely for the beauty of its flowers; it is not used as a medicine by the natives.

Nigella Sativa. (Roxb). Used by the ancient Greeks in uterine affections.

Papaveraceæ. *Papaver Rhœas.* (Lin). In gardens as a flower; medicinal properties unknown to the natives.

Papaver Somniferum. (Willd). The poppy is cultivated in the districts about Aurungabad. The opium produced is of an inferior quality and sells in the bazar for one half the price of Malwah. The young plants of the poppy are eaten as greens by the natives and are not found to possess any narcotic property: the price of Malwah opium in the Aurungabad bazar is sixteen rupees a seer.

The external application of opium in some form to topical inflammations, is a favourite native practice and often a successful one.

* *Argemone Mexicana.* (Willd). The yellow juice used as an application in sore backs of horses. In the West Indies the juice is inspissated and hardened and called Jamaica Gamboge.

Fumariaceæ. *Fumaria Indica.* In gardens; a slight bitter.

Nymphæaceæ. * *Nymphæa Cyanea.* (Roxb).

Nelumbiaceæ. * *Nelumbium Speciosum.* (Willd). This plant is cultivated in China for its roots, which are there, and in this country, used as articles of food.

Pythagoras is supposed to have prohibited his disciples from eating them from a tender regard to their stomachs, as the faba Egyptiaca is considered constipating and astringent. According to Pallas a cosmetic is prepared from the flowers on the banks of the Wolga.

Magnoliaceæ. * *Michelia Champacca.* — *Chumpa.*
Root said to be used as a purgative by the natives.

Annonaceæ. * *Annona Squamosa.* (Willd). *Seetaphul.*
* *Annona Reticulata.* (Willd). *Ramphul.*

tency of thin jelly, hold this over the flame of a candle in a silver spoon till it boils; when cool, plaster this all over the eye-lids and round the eye, taking care that none of it gets into the eye; wash the eyes in the morning with warm milk and water. Two or three applications are generally sufficient.

Umbelliferæ. With the exception of the hydrocotyle, all these umbelliferous plants are objects of cultivation. The high caste Brahmins have a strange and whimsical objection to eating carrots; they say the inner part of the root resembles bone so closely and the outerflesh, that they regard it as a kind of animal food.

* *Hydrocotyle Asiatica.* (Willd). * *Cuminum Cyminum.* (Willd). * *Apium Graveolens.* (Willd). * *Daucus Carota-* (Willd). *Gajur.* * *Anethum Sowa.* (Roxb).

The leaves of the dill are often mixed with other greens particularly the *palak* (*Beta Bengalensis*) as a corrective.

* *Ligusticuun Ajowan.* (Fleming). *Owah.*

Vitaceæ. The fruit of several species of *cissus* and also that of the *vitis indica,* are eaten by the Bheels and other hill people who consider them demulcent.

Cissus Vitiginea. (Lin).

The decoction of the root with aromatics is given internally in bruises and other injuries.

* *Cissus Quadrangularis.* (Willd).

Vitis Indica. (Willd). *Ran drachsh.*

The root of the *vitis indica* after being sliced and dried is along with one half its quantity of rhubarb, given in the form of decoction in liver complaints and leprosy. This is a Portuguese remedy and among a certain class of natives an highly valued one. I have never been able to find out what particular effect on the body this decoction has, save that it is slightly purgative, a quality owing in all probability to the rhubarb. The taste of the root is at first slightly astringent but afterwards gives that peculiar sensation to the fauces which is experienced from croton oil and some arums in their raw state.

I have been informed that the plant is put to the same use by the Portuguese as the whortlebery *(arbutus uva ursi),* this may happen from the fruit of both being somewhat similar.

* *Vitis Vinifera.* (Lin). Grape *(Drachsh).*

The vine is extensively cultivated and its produce is thought to excel the grapes of any other part of India.

* Colonel Sykes mentions seven varieties of grape as being cultivated and enumerates six by name, of these, four are grown here, viz.

1st. *Hubshee.* A long black grape approaching nearest to the

* Statistics of the Deccan.

black * Hamburgh of English gardens, the leaf of the vine producing this variety is small and deeply lobed.

2*d. Sahibee.* A long white grape with an astringent skin ; leaf of vine broader and of a lighter green than the last.

These two varieties are the most esteemed being sold at the gardens for rupees one and a half a seer at the beginning of the season, and seldom to be procured for less than half a rupee a seer, a price wholly disproportioned to the expense of their cultivation and to be accounted for only by the high tax levied by Government on their production ; a very good raisin is obtainable from the first variety.

3*d. Fakhrie.* Sweet water grape ; leaf of the vine shallow lobed and broad. When the crop is plentiful, so much as twenty-five seers are procurable for one rupee, it is cultivated extensively throughout the villages, whereas the *Hubshee* and *Sahibee* are only found in the gardens of the city or at Dowlatabad.

4*th. Bokhrie or Ahbee.* A round flesh coloured sour grape; every where to be met with. Leaf differs little from that of the preceding,

* Loudens Cyclopædia of gardening.

The vines are propagated by cuttings, when first put into the ground they are carefully protected from the dry chill easterly winds by a low fence ; they usually bear fruit in the third year ; the vines are planted in squares twelve feet apart and are supported by fast growing trees such as the Aeschynomene grandiflora, Erythrina Indica and Jatropha cureas, round the branches of which their tendrils twine.

In the hot season after the grapes have been gathered, they are pruned and manure composed of cowdung ashes, is applied to their roots ; they are occasionally watered during the whole period of the hot season and in the rains they are kept from vegetating by constant cutting ; at the termination they are permitted to shoot and much trouble is incurred to prevent a small species of beetle from consuming the tender shoots and leaves ; this is done by smoking and shaking the vines twice a day.

The grapes ripen at various periods according to the season, but are generally most abundant about the middle of February. The advice of Virgil. "Neve tibi and solem vergant veneta cadentem," is strictly adhered to, all the gardens being to the end of the fortress of Dowlatabad whose shadow protects the trees from the baneful influence of the setting sun. The soil of the gardens is light containing according to a rough estimate made from a specimen of soil taken from one of the principal gardens thirteen per cent of lime.

The question of wine-making in this country has often been discussed, and occasionally (as at Kunhar a few years ago) put to the test of experiment. The superior flavour and quantity of saccharine matter in the grapes would appear to favour the production of a rich wine, but the fact that no vinous fermentation can go on in what may be called a normal manner above 65 Fahr. must ever offer a serious if not an insuperable obstacle to wine-making in India.

except that the petiole and veins are of a wine red colour, a circumstance attributable to the action of the air on its acid juice. A good vinegar is prepared from this grape.

Combretaceæ. * *Terminalia Bilerica.* (Roxb). *Beharah.*

Infusion of the bark and fruit used as a gargle in inflammations of the fauces.

* *Terminalia Chebula.* (Willd). *Hillah.*

* *Terminalia Glabra.* (Wight and Arnott). *Arjunah.*

The pounded bark is used by the Bheels as an application in wounds; an extract from it called Arjoon Sardaollah, is an excellent application in cases of sore-back of horses, camels, &c.

Myrtaceæ. * *Punica Granatum.* (Lin). *Dahlim.*

Bark of the tree and rind of fruit regarded by the Hippocratists as the best of astringents. The efficacy of the bark of the root in expelling tape-worm has been long established by experience in Europe.

* *Myrtus Communis.* (Lin).

In gardens. Astringent; a wine was prepared by the ancient Greeks from its * fruit.

Engenia Jambolana (Lamarck). *Jamb.*

Cucurbitaceæ. * *Cucumis Colocynthis.* (Willd). *Goleeah Indrawen.*

The colocynth plant is found abundantly here; it delights in an arid soil and grows generally where there is loose soil.

Lagenaria vulgaris (De Candolle). *Kurwa boplah.*

The mucilaginous seeds of this and several other species of this order, are employed in infusion in ardor urinæ, &c. as demulcent.

A property also in common to many species, is the purgative quality of the pulp near the rind. Although partial to gourds, cucumbers, melons, &c. the natives are strongly impressed with the belief of their unwholesome nature and rarely fail to attribute any severe sickness to an abundant crop of them.†

* *Bryonia Scabrella* (Roxb). *Scabra* of Ainslie.

* *Bryonia Filiformis* (Roxb).

Seeds given to children along with aromatics in heat of body.

Bryonia Glabra. (Roxb).

The fleshy root of this plant is looked upon in this part of India

* Dierbach's materia medica of Hippocrates.

† McIntosh's account of the Mahdeo Kolies. Madr. Gateway. Journal.

as a powerful remedy in snake bites. From its Teloogoo name of *naga donda*, Roxburgh suspected as much; when used, a portion of the root is applied to the part bitten and a small piece is eaten.

It would be a bold assertion wholly to deny the efficacy of certain substances in alleviating the pain and counteracting the effect of a snake bite, but the notorious fact of the deep dread entertained by the natives of India of the bite of every reptile, whether venomous or not, must render us very sceptical about a number of remedies believed by them to be efficacious in such cases; for there is nothing that approaches so near in its effects on the animal economy to a snake bite as the passion of fear.

CACTACEÆ. * *Cactus Indicus* (Lin.) *Opuntia Delenii* (Hawk.)

Fruit used by the natives in spleen and applied in cases of scorpion bites.

The plant itself after being carefully denuded of its outward membrane and thorns, is used as a poultice in guinea worm, all over the Deccan by the natives. The specific powers ascribed to this substance in extracting the worm are not to be credited. A very good emollient application it very probably is, but no one acquainted with the disease could ascribe any other property to such a remedy.

CRUCIFERÆ. * *Lepidium Sativum* (Lin.) — *Hulwee.*

* Used by the ancient Greeks in diseases of the breast.

Sinapis Alba (Lin) *Mohriah.* *Sinapis Nigra* (Lin.)

Both species cultivated for the sake of the oil.

Raphanus Sativus (Lin).

CAPPARIDACEÆ. * *Cleome Pentaphylla* (Willd) *Selwin.*

A very common remedy among the natives who express its juice, and pour it into the ear in cases of ear-ache; in head-ache they rub it on the forehead, the leaves are eaten also as greens and the seeds used in veterinary medicine.

* *Cleome viscosa.* (Willd.)

The seeds of this species are employed in the following manner for the cure of piles. A hole is dug in the earth, and into it are put a gurrah containing ignited charcoal and on the top of this another gurrah containing the seeds of the plant. By this means a smoke arises from the seeds, advantage of which is taken by the patient;

this rough mode of fumigating is resorted to in other cases and with different remedies, such as the Madar &c.

Cleome Monophylla (Willd.)

Used for the same purposes as the *Cleome pentaphylla.*

* *Stræmeria tetrandra,* (Roxb). *Cleome.*

Fruticosa, (Lin).

The whole plant after being cut into slips with the leaves and fruit on, is subjected to a species of distillation common in India for what is deemed the extraction and concentration of the powers of a vegetable, by which, (whatever may be its intrinsic virtues) an empyreumatic oil or liquor must be the uniform result; a hole is dug in the ground, an earthen vessel placed undermost is covered at its mouth by another of the same kind with its bottom pierced by holes, into which the substance to be operated on is placed. Fire is placed in a flat dish on the superior vessel and a liquor or an oil descends to the lower one. Such a process, it is almost unnecessary to add is sufficient to ruin the inherent qualities of any plant. In this case a liquor is generated, possessing not one characteristic of an oil; well carbonised doubtless and having all the stimulant properties of pyroligneous acid. The liquor is used in rheumatism with friction.

Moringaceæ. * *Hyperanthera moringa* (Willd.) *Sehogah.*

The *ben* nuts once so celebrated in Europe are the produce of this tree; from them an oil is derived which resists rancidity; two and a half pounds yield an ounce of the oil. The ancient Greeks employed the capsules as * pessaries.

The root appears to contain the stimulating principles of the horseradish and might be used for the same purpose in medicine.

Papayaceæ. * *Carica Papaya.— Papaw tree. Phopy.*

Flacourtiaceæ. *Flacourtia Sepiaria.*

Fruit rather a cooling article of diet than a medicine.

Sapindaceæ. * *Sapindus Detergens.* (Willd). *Sapindus Emarginatus.* (Roxb.) *Areeta.*

Both soap nut trees. The frothy infusion is given in cases of poisoning to envelope the poisonous substance, and prevent its action on the coats of the stomach previous to its being ejected.

* *Cardiospermum Halicacabum.* (Willd). Seeds thought aphro-

* Dierbach.

disiac. *Scytalia Litchi.* (Roxb). The litchi grows well at Aurungabad and produces a fruit which is palatable enough.

In China we are told that the seeds of the Litchi toasted and powdered are swallowed in the morning fasting for nephritic pains and gravel.*

Linaceæ. * *Linum Usitatisimum* (Willd). Sown in this neighbourhood as in Britain, on the skirts of grain fields.

Sterculiaceæ. * *Helicteres isora.* (Willd).

* *Sterculia Fætida* (Willd). *Kydia Calycina.* (Roxb). Bark mucilaginous, used in cutaneous diseases.

* *Bombax pentandrum.* In gardens.

* *Bombaxi Heptaphyllum* (Willd). *Adansonia Digitata.* (Willd).

Several specimens of the far famed Baobab tree grow in this vicinity, the acid fruit is taken by the natives as a cooling diet.

The bark of this tree which yields a considerable quantity of mucilage, is held in great esteem by the natives of Senegal, who deem it prophylactic, and there is scarcely an article of food they take without first adding to it a certain quantity of the powdered bark.

Malvaceæ. The plants of this and the preceding family are all more or less mucilaginous and are on that account, extensively employed by the natives in affections of the mucous membrane. Regarded as accessories of no great power by us, they are esteemed by them, principal and powerful remedies; there is scarcely a plant or a shrub of the whole tribe they do not use as a medicine in some shape or other. The following are those in general use.

Malva Mauritiana. (Willd). An ornamental plant in gardens. *Althæa Rosea.* (Willd). *Hibiscus Populnoides.* (Roxb). The yellow juice used in ring worm. * *Hibiscus Rosa Sinensis.* (Willd). Unexpanded petals are given in cases of strangury. *Hibiscus Longifolius.* (Willd). Infusion of root in diarrhæa and gonorrhœa. *Hibiscus Cannabinus.* (Willd). *Umbarrah.* A Cataplasm of the leaves is applied in cases of scald-head.

Sida Humilis. (Roxb). Used in fomentation. *Sida Alnifolia* (Willd).

A handful of leaves pounded up with two ounces of sugar is eaten morning and evening in cases of impotency.

Sida Cordifolia. (Willd). This is a very common application

* Lettres Edifiantes et Curieuses.

among the natives in bruises, ulcers, and almost every other affection of the surface, it is no unusual thing to hear the praises of the "country marsh mallow" among our own country men. Farther than being a good emollient it would appear to possess no particular virtue. In the days, not altogether yet gone by, when every simple abrasion of the surface was tortured into an ulcer by the application of some rancid and stimulating ointment acting much worse than any foreign body, it is not to be wondered at, that a simple remedy like this should have come into vogue.

* *Sida Asiatica.* (Willd). * *Sida Indica* (Willd).

Tiliaceæ. *Corchorus decemangularis.* (Willd).

Infusion of leaves drank twice a day in cases of gonorrhœa.

* *Grewia Asiatica.* (Willd). Cultivated in gardens for the sake of its fruit from which an excellent sherbet is made.

Meliaceæ. *Melia Azedirach.*

* *Melia Azedirackta.*

Cedrelaceæ. * *Cedrela Toona.* (Willd). *Toon.*

This tree is held sacred by the Hindoos, it's powdered bark and wood have been successfully employed by European practitioners as a febrifuge.

* Aurantiaceæ. *Bergera kœnigii. Kariah path.* * *Feronia Elephantum. Kaweet.* * *Aegle Marmelos, Bail.*

Cultivated, but grows in the jungle; the most sacred of trees among the Hindoos; no oath is reckoned so solemn among Mahrattas as that of the Bel and Bandar. Roxburgh's praises of the qualities of the fruit appear over-strained.

Citrus Limonum. (Willd). *Weer. Citrus Decumana.* (Willd). *Chu Kotur. Citrus Aurantium.* (Willd). *Narung.*

The Aurungabad orange is celebrated all over the Deccan. Three species are cultivated. 1st. *Sungtra;* which from its name would appear to be originally from China, is a fine orange, very juicy with a loose skin; a quart of juice is yielded by twelve of the fruit; the price at Aurungabad is four rupees a hundred; there are two crops, one at the end of the rains and another in January, it is almost unnecessary to add that the first is inferior to the second. The trees bear fruit at six and are at their prime at twelve or fourteen years old. 2nd. *Kowlah.* A mucilaginous orange, half the price of the former. 3rd. *Naringee.* Common country orange. More aromatic than the

two preceding but less juicy; it is also much smaller, and sold at one and a half the price of the *Sungtra*.

Spondiaceæ. * *Spondias Mangifera.* (Willd). *Ambarrah.*
The fruit when taken is said first to purge and then to bind and it has been thence thought, that it might answer as a substitute for rhubarb.

Ramnaceæ. * *Zizyphus Jujuba.* (Willd).
The bark is said by Rumphias to be used by the Malays in Diarrhœa. The leaves are used by the natives as an application in boils.

Burseraceæ. * *Boswellia Serrata.* (Willd) *.Sahl-phul.*
The tree producing the gum olibanum, the ancient frankinsence. Although growing in this neighbourhood particularly in the vicinity of Kunhur in abundance, the gum resin is not extracted.
Olibanum is among the most ancient of medicines, it was used by the Hippocratists * in pectoral and uterine complaints.

Euphorbiaceæ. *Croton Polyandrum.* (Roxb). *Duntee.*
Roxburgh says that the seeds of this species of croton are used as a purgative, and that by many Hindoos they are believed to be the real croton.
* *Ricinus Communis.* (Lin.) Cultivated; but the oil expressed is of an inferior quality being nauseous and somewhat acrid. The best oil in this part of the Deccan comes from Hingolee.
* *Jatropha Curcas.* (Willd). The pignon des Indes of French writers. The seeds possess a fixed oil on which their purgative qualities depend; they are used and are boiled in milk to prevent griping.
* *Jatropha Manihot.* (Willd). Tapioca tree; good tapioca has been prepared from trees growing here which flourish well.
* *Jatropha Glandulifera.* Coral tree; in gardens as an ornamental shrub.
Tragia Cannabina. (Roxb). * *Phyllanthus Niruri.* (Willd). *Booien Owlee.* Bitter; used in leucorrhœa and gonorrhœa; also as an application in gun shot wounds.
* *Phyllanthus emblica.* (Willd). *Owul Kinsi.* Grows to be a tall beautiful tree; the emblic myrobalan is its well known fruit. Dried fruit powdered with curds given in dysentery.
* *Acalypha Indica.* (Willd). * *Acalypha betulina.* (Willd).

* Dierbach.

* *Euphorbia neriifolia.* (Willd). * *Euphorbia antiquorum.* (Willd). * *Euphorbia tirucalli.* (Willd). *Dood maree.* * *Euphorbia tithymaloides.* (Willd).

Other species of *Euphorbia* are occasionally employed by the natives.

Celastraceæ. * *Celastrus nutans.* (Roxb). *Malkunghnee.*

The remarks hazarded when describing the properties of the juice obtained from the *strœmia tetrandra* must be in a certain degree applicable to the celebrated oleum nigrum of Dr. Herklots; the process by which they are both procured being the same.

The process of the oil in Beriberi has been well attested in the valuable work of Dr. Malcolmson on Beriberi and Rheumatism. The celastrus nutans is common enough here and the oil is used for rheumatic complaints, with frictions.

Portulacaceæ. * *Portulaca Oleracea.* (Lin). * *Portulaca Quadrifida.* (Roxb). Eaten as demulcents.

Silenaceæ. Various species of pink are cultivated here, and the *saponaria perfoliata* found here, very probably possesses all the real or supposed properties of the *saponaria officinalis.*

Tamariaceæ. *Tamarix diœen.* (Roxb). Bark bitter, astringent, and probably tonic.

Zygophyllaceæ. *Tribulus Lanuginosus.* (Roxb). Used as greens; capsules supposed to be aphrodisiac; its congener and close ally the *Tribulus Terrestris** is used in the Ionian Islands in decoction for nephritic complaints. (W. and Arnold).

Fagonia mysoriensis. Aphrodisiac like the preceding.

Rutaceæ. * *Ruta Graveolens.* (Lin). *Suddag.*

Used originally as a safeguard against infection; by a very common transition, it is now looked on as a charm; it is used as an anthelmintic by the natives.

Xanthoxylaceæ. *Ailanthus excelsa.* (Willd). Bark of the tree a weak bitter.

* Medical Topography of Mediterranean.

Oxalidaceæ. *Averrhoa carambola.* (Willd). *Karumbul.*
Oxalis corniculata. (Willd).

Rosaceæ. * *Rosa centifolia* (Lin). Cultivated at Kunhur for rose water. The conserve of roses is a good purgative but is apt to gripe.

Leguminosæ. *Crotalaria uniflora.* An infusion of this plant is given to allay severe thirst in disease.

* *Crotalaria verrucosa.* (Willd). * *Crotalaria juncea.* (Willd). *Tagg.* The flowers are eaten in rheumatic cases. * *Trigonella fœnum Græcum.* (Lin). *Maytee. Indigofera cœrulea.* (Willd). Root burnt applied in tooth-ache. * *Clitoria Ternatea.* (Willd.) *Æschynomene grandiflora. Angustee.* The bark of this tree is enumerated by Humboldt in a list of febrifuges ; * it is on this excellent authority that it is given. The flowers are eaten as a potherb by the natives.

* *Cicer arietinum.* (Lin). *Urburee.* The green plant is used by the Portuguese in dysmenorrhæa. It is put in hot water and the patient sits on the steam, this is only another way of steaming with vinegar.

* *Abrus precatorius.* (Willd). * *Erythrina Indica.* (Willd). *Pangrah.* * *Carpopojon Pruriens.* (Roxb). * *Butea Frondosa.* (Willd). *Paras.*

East India kino tree, said to indicate a suspicious locality, but to the medical topographist the remark of Lord Bacon " that the goodness of the air is more known by experience than signs" should not be lost sight of. Seeds anthelmintic.

Dalbergia arborea. (Willd). *Kurrunj.* * *Acacia Arabica.* (Willd). *Bahbaree. Acacia Serissa.* (Lin).

Dr. Malcolmson mentions that he has seen natives plucking the leaves of this tree as a cure for beriberi.

* *Acacia Cinerea, Mimosa Cinerea.* (Roxb). * *Acacia Sundra.* (Willd). * *Acacia Catechu.* (Willd).

Both yield catechu, but the trees are so stunted in their growth in this neighbourhood, that the manufacture of catechu from them would be vain and unprofitable.

* *Acacia Scandens.* (Willd). * *Mimosa pudica.* (Willd). * *Cæsalpinia Bonducella.* (Fleming). *Kool Kulunjen.*

* Humboldt, Tom. ii. Note to pages 38, 39.

Seeds a well known febrifuge. The roots rubbed down with water and applied to wounds inflicted by scorpions; a portion of the root is also taken internally for the same purpose.

* *Poinciana Pulcherrima.* (Lin). * *Tamarindus Indica.* (Willd). Two varieties red and green, the former in most esteem. The following emetic is given by natives, in cases of poisoning requiring immediate emesis; a few copper pice are put into some tamarind infusion, which is stirred about for a minute or two and then administered. It would be a waste of time to explain, how vomiting takes place by this very obvious means.

Cassia Fistula. (Willd). *Baharchee.* Leaves cooked with prawns give in diseases of the spleen. *Senna Absus.* (Roxb). *Senna Exiguá.* (Roxb). *Chaksoo.*

The pounded seeds of these last two species are in great use among the natives as a cure for ophthalmia; a small quantity of the powder is inserted between the tarsus and eye-ball, and according to some little experience I have had, it is in certain cases a good and safe remedy. The seeds may be procured in every bazar in the Deccan, being the most common remedy the natives employ for ophthalmia.

Senna Tora. (Roxb). *Senna Toroides.* (Roxb). *Tarota.* The leaves of these scarcely distinguishable species are used by the natives as medicinal greens. The seeds are likewise employed in psora as an external application.

Senna Sophora. (Roxb). Leaves eaten in nyctalopia, flower applied to the loins in cases of Malabar itch.

* *Senna Auriculata.* (Roxb). The chopped leaves mixed with one half their quantity of the earth of a white ant's nest, are applied to swelled legs in horses.

Bauhinia Purpurea. (Willd). *Kunchenu.* Flowers eaten in dysentery. Flowers of other species employed for the same purpose and are all called indiscriminately *Kunchenu.*

CRASSULACEÆ. * *Cotyledon Laciniata.* (Willd). *Panmohr.*

Leaves eaten as greens and esteemed cooling; they are subacid, without an unpleasant taste.

ANACARDIACEÆ. * *Semecarpus Anacardium.* (Willd). *Bilaba.*

The juice of the shell of the marking nut is very generally employed by the natives as an epispastic and also taken internally in venereal complaints. The belief of its efficacy in the latter being most probably derived from the old doctrine of signature which obtains here, as a popular notion. Every one who has had any prac-

tice among natives, must have had occasion to see the troublesome and sometimes fatal consequences produced by its abuse. Its effects on different individuals are strangely dissimilar, on some, it acts simply as a blister, while on others deep ulcerations with sloughing and even death itself (if the scrotum be the part on which it is put) are the results of its application: even sleeping under the tree is said to be attended with very troublesome consequences; by subjecting the juice to a species of distillation it is said to be rendered more manageable as an epispastic. The whole nut is given to horses in farcy; the native farriers commence by giving one a day and gradually increase the dose by one, till they reach fifteen which is the maximum given, they then decrease the quantity by one; they think it a good remedy.

URTICACEÆ. * *Cannabis Sativa.* (Willd).

In addition to its well known qualities this plant is said to be an excellent Hypnotic, and to succeed when opium, hyosciamus, &c. have failed; if so it would be a vauable addition to the Materia Medica.

* *Ficus religiosa.* (Willd). *Guleree.* * *Ficus Indica. Bohr.* * *Ficus Carica.* (Willd). *Unjeer.* * *Ficus glomerata.* (Willd). *Oomber.* The juice of the tree tapped in the morning is given by the Kolies to their children. *

PIPERACEÆ. * *Piper Betel.* (Lin). Much Cultivated here: root used in fever. * *Piper Longum.* (Willd). A few specimens in gardens.

SANTALACEÆ. * *Santalum album.* (Lin.) *Santalum Myrtifolium* (Roxb). Wood considered heating and stimulant.

ARISTOLOCHIACEÆ. * *Aristolochia bracteata.* The natives have an idea that if the common dog fly gets into the ear, very fatal consequences may result. For this reason, they are very anxious to get it out and use the juice of this species of Aristolochia for the purpose.

AMARANTHACEÆ. * *Amaranthus campestris.* (Willd). * *Amaranthus spinosus.* (Willd). Leaves used for poultices. * *Achyranthes aspera.* (Willd.) *Agullah. Achyranthes Alternifolia* (Banks herb). Whole plant used with black pepper in fever.

* McIntosh's account of the Kolies.

Polygoneæ. *Polygonum Barbatum.* (Roxb). Plants after being steeped in urine, applied in Rheumatic cases to allay the pain. *Rumex vesicarius.*

Nyctagineæ. * *Mirabilis Jalapa.* (Persoon).

Grows here in great abundance. Flowers of various colours, its leaves are used as discutient.

* *Boerhaavia Prostrata.* (Herb Banks). The root of the red stemmed variety applied to snake bites.

Menispermaceæ. * *Menispermum cordifolia.* (Willd).

The well known *gulancha* plant of Bengal. When the fever comes on without shivering, a decoction of the plant without additon is administered. When rigors are present, black pepper is added.

Menispermum Pluckenetii. (De Candolle). Used as the preceding.

Sapotaceæ. * *Mimusops elengi.* (Willd). * *Mimusops hexandra.* (Willd). * *Bassia Latifolia.* (Willd). *Mowah.*

The mohwah spirit is prepared in the adjacent hills where the Bassia grows. By the first distillation an unwholesome ill flavoured spirit is obtained and is known to European soldiers under the name of *fanny*; the second distillation gives a spirit much stronger and more palatable, resembling in flavour Scotch whisky.

Convolvulaceæ. *Ipomæa quamoclit.* (Willd). Root sternutatory. *Ipomæa cærulea.* (Koenig M. S. S.)

This proposed substitute for Jalap is one of the most common of the order, growing in every hedge; its seeds are said to be an excellent purgative and to be unattended in their action by griping, so common an occurrence with other resinous purgatives.

* *Convolvulus Turpethum.* (Willd). *Dodd kalnie.*

* *Convolvulus grandiflorus.* (Lin). Leaves an application in guinea worm. * *Evolvulus Alsinoides.* (Willd).

* Rubeaceæ. Chinchonaceæ. *Gardenia Lucida.* (Roxb). *Decamullee tree.*

One of the trees producing the *Decamullee* or cumlie gum as it is called, is found growing in some of the city gardens, but is no where seen wild in this neighbourhood. Cumlie gum is clearly a misnomer as the substance in its chemical relations is a resin. Its properties being insolubility in water, solubility in alcohol; it is dissolved also by Sulphuric Acid: a black liquor being produced.

The resin is very much used by the natives of the Deccan in medicine, in fever combined with bitters and in cholera with stimulants; it gives great relief to children when teething by being rubbed on the gums after being softened by lime juice.

* *Gardenia Dumetorum.* (Willd). Grows in the jungles near Kunhur. * *Morinda Tinctoria.* (Roxb). Cultivated, a very exhausting crop. * *Ixora parviflora.* (Lin). * *Pavetta Indica.* (Lin). * *Coffœa Arabica.* (Lin). Coffee grows well here; the tree produces a scanty but well flavoured crop.

Compositæ. * *Vernonia Anthelmintica.* (Willd). * *Eclipta prostrata.* (Willd). *Xanthium Indicum.* (Koenig M. S. S.)

The capsules placed in the ear in cases of ear-ache; they can have no other effect than simply excluding the air.

* *Verbesina Sativa.* (Willd). *Karleh.* Cultivated for its Oil. * *Cacalia Kleinii.* (Persoon). *Oonneree.* This plant has been proposed to be substituted for Sarsaparilla. The natives apply its fleshy leaves to wounds inflicted by rats.

Carthamus Tinctorius. (Willd). *Kurdee.* Cultivated as an oil plant.

Cichoria Kosmii. (De Candolle). Leaves and infusion of seeds used in dropsy. * *Lactuca Sativa.* (Lin). In gardens. *Sonchus Oleraceus.* (Willd). Eaten as a vegetable; infusion given after the exhibition of mercury in syphilis.

Pyrethrum Indicum. (Roxb). The plant given in Gonorrhœa along with black pepper. The root produces the same tingling as its congener the *Pyrethrum* and might be used for the same purpose.

* *Sphœranthus mollis.* (Roxb). Flowers eaten in ophthalmia.

Echinops echinatus. (Roxb). Infusion of the plant given, when an undue quantity of the Ruscapoor has been taken.

Chrysanthemum Indicum. (Willd). Leaves used in secondary syphilis.

Plumbagineæ. * *Plumbago Zeylanica.* (Willd).

Cordiaceæ. *Cordia Latifolia.* (Willd). *Bhokur.* * *Cordia Myxa.* (Willd.) *Gondnea.* Fruit demulcent; used by the ancient * Greeks in various female complaints. We are told by Wilkinson † that the ancient Egyptians extracted from the *Cordia Myxa* a spirituous liquor.

* Dierbach. † Ancient Egyptians.

EHRETIACEÆ. * *Ehretia Buxifolia.* (Willd). The root of this plant might be tried as a substitute for Sarsaparilla.

BORAGINEÆ. *Borago Indica.* (Willd). *Borago Zeylanica.* (Willd). In common with many of the *asperifolia,* the leaves of these two species contain mucilage, they are employed by the natives for emollient poultices.

PLANTAGINÆ. * *Plantago Ispagholu.* (Fleming). Cultivated here for its seeds, the use of which in bowel-complaints and gonorrhœa, is well known.

LABIATÆ. The aromatic plants of this order are mostly all employed by the natives in medicine; their seeds as carminative and the leaves rubbed on as rubefacient: it would be endless to enumerate all which are used.

Mentha Sativa. (Lin). *Podin. Phlomis esculenta* (Roxb). This is the plant supposed to be resorted to by the Mungoose when bitten; it has hence been presumed an excellent remedy in snake bites.

Phlomis cœphalotis. (Koeing M. S. S.) Infusion of this plant and of the leaves of the fig-tree drank in gonorrhœa.

Ocimum Fruticosum. Leaves applied to kill vermin in the sores of horses, &c.

* *Ocimum odoratissimum.* (Willd). * *Ocimum Sanctum* (Willd). *Ocimum Tuberosum.* (Roxb(. Probably the *Plectranthus tuberosus* of Ainslie. Tubers accounted aphrodisiac.

Ocimum Modorum (Koenig M. S. S.) Used in weakness of loins in horses.

* *Plectranthus aromaticus.* (Roxb.) *Melissa Officinalis* (Lin). In gardens.

PEDALIACEÆ. * *Pedalium murex.* (Willd). * *Sesamum Indicum* (Willd). *Sesamum Orientale.* The sesamums are well known oil plants. The Jesuit Pere Petit mentions that one part of the oil with two parts of water shaken together, is a popular remedy in India for head-ache.

ACANTHACEÆ. * *Justicia Paniculata.* (Lin). *Creyat.* Found in great abundance here, particularly in the tomb garden: it is an exceedingly hardy plant, rooting itself in the chinks of the pavement and crevices of the walls. The virtues of this plant as an excellent bitter are well established. Native Druggists are in the constant

habit of confounding it with the *gentiana cheyratta.* Its close ally the *justicia echiodes* is likewise very bitter and might be employed as such if occasion demanded, it also grows here in great plenty.

* *Justicia Bicalyculata.* (Lin). Leaves boiled in butter applied to wounds.

* *Justicia Adhatoda.* (Willd). * *Barleria Prionitis.* (Willd). * *Barleria Longiflora.* (Willd). *Ruellia Longifolia.* (Roxb).

Seeds used as an addition to a poultice to render it stimulant. Leaves eaten as greens.

Blephanis Boheroifolia. (Decandolle). The whole plant is used in infusion in dysmenorrhœa.

Orobanchaceæ. *Orobanche ramosa.* (Buch).

The root of this common parasite is used for tooth-ache. Astringent.

Scrophulariaceæ. * *Gratiola Monneœrü.* (Lin). *Columnea Ringens.* (Roxb). The juice of the leaves mixed with sugar is taken in gonorrhœa.

Solanaceæ. * *Capsicum Annuum.* (Willd). * *Capsicum Frutescens.* (Willd). *Meerchee.* Other species of Capsicums are cultivated in gardens.

* *Solanum Jacquini.* (Willd). *Kuntah Kaseeke.* * *Solanum Rubrum.* (Willd). *Camoonee.* The juice of this plant along with the seeds of the *Nigella sativa* is employed in cases of dropsy.

* *Physalis Flexuosus.* (Willd). * *Physalis Minimus.* (Willd). * *Datura Fastuosa.* (Willd). *Dohtra.* * *Datura Metel.* (Willd). *Nicotiana Tabacum.*

The tobacco grown here is very indifferent, fit only for snuff or *goracco.* The soil most suited to it, that containing a large proportion of the peroxide of iron, does not exist in this neighbourhood.

Gentianeæ. *Gentiana Verticillata.* (Lin). *nace.*

This species of gentian is much employed by the Natives in medicine whether human or veterinary, it is an intense bitter and may be had in any quantity, being a very common plant.

The characteristic of all the gentians is bitterness and it may be questioned, whether the worm eaten and sometimes musty *cheratta* procurable in the bazars here, can equal in its effects the fresh *Gentiana verticillata.* It is on this account worthy of the attention of the profession in this part of India.

Asclepiadaceæ. * *Asclepias volubilis.* (Willd). * *Asclepias gigantea.* (Willd). *Akra.*

Every part of this plant, root, stem, leaf, and flower, is employed by the Natives of India as medicine. The stigma is chewed in pan as a strengthening and corrective, the stem is used in fumigation as a cure for rheumatism and stiff joints.

Dr. Duncan, in a number of the Edinburgh Medical and Physical Journal, has found fault with Dr. Ainslie for calling the *Asclepias Gigantea* and not the *Calotrophis procera*, the real Madar plant; but without reason, as from the roots of both, Madar is procurable.

* *Asclepias eclunata.* (Roxb). *oohun.*

Juice of the roasted flowers given to children in coughs. Seeds used as a purgative.

Asclepias pseudosarsa. Country Sarsaparilla. Grows here in great abundance particularly at the village of Sattara, where the sides of the water-courses are clothed with it. The root has a peculiar, but by no means disagreeable smell, and is not, as Dr. Ainslie states, inodorous; its infusion is given with the root of the *physalis flexuosa* in fever, and also to children of a weak habit of body.

At the end of the hot season if we may judge from the diminished odour of the roots, it parts with some of its properties, it should be gathered at the end of the rains.

* *Asclepias curassavica.* In gardens, where it is cultivated as an ornamental plant.

Apocynaceæ. * *Vinca parviflora.* (Willd). * *Nerium odorum.* (Willd). Leaves used in the Ionian islands as an application in the form of an ointment in psora.* The flowers contain Prussic acid; and the root, a strong poison, is often given by native women as a means of recalling lost affections.

* *Carissa carandus.* (Willd). *kurwund.* The seeds of the *Caround* pounded and mixed with the flowers of the *muhwah (Bassia Latifolia)* are made into balls by the Bheels and taken by them on long journeys to allay the cravings of hunger. An infusion of the root is also used as an eye-wash.

Jasminaceæ. *Jasminum Sambac. Jasminum Latifolia.* Both these species are found in the jungle and two or three more are cultivated in gardens for the beauty and fragrance of the flowers. Jasmine flowers are thought cooling and applied to the breasts of

* Medical Topography of Mediterranean.

women to repress the flow of milk; a pill made of the bruised flower is also used in tooth-ache †

Nyctanthes arbor tristis. Tubes of the corolla considered stimulant.

Monocotyledenous.

Zingiberaceæ * *Zingiber Officinalis.* (Lin). Cultivated Dry ginger is sold in the bazar for three rupees a seer.

* *Curcuma longa.* (Willd). *Haldee.* Cultivated at Phoohnurry, Sailour and on the Booranpoor road; it requires a rich black soil. Natives are in the habit of rubbing their hands and feet with it in cases of internal heat; it is used also in wounds, bruises, pain.

Amomun Cardamomum. (Lin). Cultivated in gardens for the sake of its flowers and foliage; seeds seldom attain perfection.

Musaceæ. Various varieties are cultivated here; the wild variety is found growing among the rocks at Roza.

Musa Sapientum. (Willd). *soukel*

Amaryllidaceæ. *Curculigo orchioides.* (Roxb). The root boiled withmilk: a favourite aphrodisiac among the natives; it evidently contains mucilage.

Orchidaceæ. *Orchis. Orchis Commelinæfolia.*

I regret not being able to ascertain the species of the first *orchis*; it grows abundantly in the ravines leading from the Santmullah range to Kandeish; the tubers are collected by the Bheels and sold by them for two pice a seer. The art of preparing salep is but imperfectly known to the natives; otherwise it cannot be conceived how such a favourite article of diet in certain cases, should still be imported and sold at such an extravagant rate in every bazar in India.

I have tasted the salep prepared from this *orchis* cooked with milk, and it appeared to me to possess all the qualities of the Persian or Cabul article; the larger tubers are, it is true, rather bitter but this (as the bitter principle is soluble in water) might with proper attention be removed. A small tuber is found attached to the roots of the *orchis commelinæfolia* which contain bassorine.

Palmaceæ. * *Sagus Farinifera.* (Willd). The sago palm; a few specimens in gardens.

† Mc Intosh's account of the Kolies.

* *Caryota urens.* (Willd). Besides the well known produce of this tree, *Taree*, the pith is said to be capable of being manufactured into sago.

* *Cocos nucifera.* (Willd). *narelee.* A few cultivated here. * *Borassus flabelliformis.* (Willd). *Tarh.* In gardens.

LILIACEÆ. * *Allium Sativum.* (Willd). *Lussun.* * *Allium Porrum.* (Willd). * *Allium Cepa.* (Willd). *Kanda.* * *Scilla Coromondeliana.* (Roxb). *Ran kanda.*

Proposed substitute for squill; it grows on the Kunhur hills; it is used by the natives as a horse-medicine.

* *Asparagus Racemosus.* (Willd). Root mucilaginous, one of the *suffaid Mooslees* of the natives. *Mooslee* being the general name for all mucilaginous roots.

Aloe Perfoliata. (Willd). *Korssur.*

Two of the varieties of the *Aloe Perfoliata* are found here. One cultivated in gardens of a brown rusty colour, the other grows spontaneously in the jungles, its leaves are of a dark green colour with white spots. The flowers are eaten as a vegetable by the natives. A common practice is to hang up the whole plant from the roof of the house to preserve the inmates from evil spirits; a similar practice obtains in Egypt.†

COMMELINACEÆ. * *Tradescantia Axillaris.*

PANDANACEÆ. *Pandanus Odoratissimus.* Flowers used in sherbets. Humboldt says that the unripe fruit is accounted emmenagogue in South America.

ARACEÆ. * *Arum Esculentum Awloo.* Leaves discutient.

PISTIACEÆ. * *Pistia Stratiotes.*

* GRAMINEÆ. *Andropogon Iswaranacusa. Rowsah.*

This grass is found about Aurungabad, although not in sufficient quantity to repay the trouble and expense of manufacturing the oil.

In the Deccan, the chief places of the distillation of the celebrated Rowsah oil, or as it is oftener called, the grass oil of Nemâr, are Julgoam or Jamooth, villages situated under that branch of the Sautpooras in which Gawelghur is situated and about one hundred and

† Lane's Modern Egyptians.

twenty miles west of Ellichpoor. The panicles of the grass are collected from October, when the plant is in full flower, till the close of the cold season; they are then dried and any impurity adhering to them is carefully rubbed off by the hand; after being soaked in water for two or three days, they are distilled after the manner of spirits and by the same apparatus. Goozerattees usually conduct the process, there is no care whatever bestowed on the cultivation of the plant which flourishes most abundantly in moist valleys and prefers a clayey soil composed of the debris of the hills. This oil as is well known, is in great esteem among the natives as an epispastic and rubifacient in rheumatism and deservedly so. At the place of its manufacture, it may be procured for Rs. 5 a seer, at the commencement of the season and for double that sum, at its termination.

In this bazar its usual price is Rs. 10 a seer but it is of an inferior quality being, very much adulterated with fixed oils.

* *Andropogon Schœnanthus.* (Willd). Cultivated: used by the ancient Greeks as an aromatic and astringent fomentation.

* *Andropogon Muricatus.* (Willd). *khus khus.* Cultivated by water courses in gardens.

* *Oryza Sativa.* (Lin). *oos tambea.*

* *Saccharum Officinarum.*

More than one variety of sugar-cane is cultivated here, the Mauritius cane has been tried at Kunhur, I believe, with success. The usual rough mode of expresssing the juice of the sugar-cane is practised here. Sugar is refined in Aurungabad by the native confectioners (Hulwaees) the process they adopt, is analogous to that pursued by the sugar refiners in the French West Indies and known by the name of claying sugar, substituting for the clay the *Vallisneria verticillata* a plant growing in still clear water. Very good sugar-candy is obtained by afterwards boiling and crystallizing the sugar and which probably, owing to possessing less of the water of crystallization, excels the China sugar in sweetness: a species of lump sugar called *Hola* in balls, is also thus obtained, it is used by the natives in sherbets and reckoned very cooling.

Saccharum Demomum. Pith used in bowel-complaints of children.

* *Agrostis linearis.* (Willd). *Harialee.*

Cyperaceæ. * *Cyperus Rotundus.* (Willd). The tubers of this species of *Cyperus* were at a very early period reckoned stimulant; they were used by the Hippocratists as such, and at this day are em-

* Dierbach.

ployed by the natives of India in many ways, from a hair perfume to a medicine for Cholera.

Cryptogamous. So little has the Botany of this difficult class of plants, been investigated in this country, that the scanty contribution afforded by it to medicine and the arts cannot be wondered at. A parasitical fungus found on decayed and fallen trees, might prove a substitute for agaric. The esculent mushroom is also common here, but much yet remains to be done in this obscure subject. The two following ferns are the only articles of the materia medica that are met with here.

* *Adianthum capillus veneris.* The well known *capillaire fern*, was used by the ancient Greeks as a protective charm, and by the natives of India is employed to rub the gums of teething children with; it is used also in infusion as a tea by the Portuguese.

Sellignea. (Bory). *Booie Tace.*

The leaves of a species of *sellignea* are given in infusion in rheumatism.

ADDENDA.

Terebinithaceæ.

Amyris. (Roxb). *Bdellium?*

A gum resin called by the natives *Googool* is the produce of this tree which grows in the neighbourhood of Umber, a town twenty miles to the eastward of Aurungabad. Roxburgh imagined that *googool* was identical with the Myrrh of commerce.

The gum resin is employed by the natives in medecine as a stimulant and also in their religious ceremonies as a substitute for frankincense.

Apocynaceæ. Nerium coronarium of (Willd). Common in gardens. *Orchidaceæ Orchis.*

By boiling the tubers of the orchis, I have deprived them of all bitter taste. The chemical principle *Bassorine* is always accompanied with a soluble bitter.

By gathering the tubers in September and subjecting them to the treatment pursued in the Levant I have no doubt, as good an article would be produced, as that sold in the Bazar, at such an exorbitant rate.

Article V.

Annual Report, for 1839, *of the* 1*st Regiment, Bombay European Infantry, stationed at Aden.* By J. Howison, Esq.

Presented by the Medical Board, May 1840.

General Observations. Having been only four months in charge of the 1st Regiment, Bombay European Infantry, it will not be expected, that I should be able to give a full and minute medical history of it, for the past year. But this is of little importance, as there is nothing remarkable to communicate on the subject; for though Aden is a new station, of the nature and influence of whose climate we have only of late had any experience, the forms of disease that have hitherto shewn themselves here, are without novelty and without any characteristics of a peculiar kind.

The 1st Regiment, Bombay European Infantry has now been stationed at Aden one year, and has undergone the ordeal of all the seasons, under circumstances of exposure, fatigue and privation, highly favourable to the developement and action of any local or endemic or epidemic disease, that might be common or peculiar to the place; but as nothing of the kind has yet made its appearance, we may presume, that such does not exist at all, and that in this part of Arabia at least, the European is subject to the same diseases that affect him, in similar latitudes in India and to no others of any importance.

At the time the regiment embarked for Aden, many of the men were in a diseased and debilitated state. They had been stationed during the preceding monsoon at Colaba, where fever, dysentery, and the means of obtaining spirituous liquors, always more or less combine to fill the hospital. Many of the men sent on board the transport, were very unfit subjects for active duty; being nearly worn out by long service, in addition to the causes above mentioned, and hence the mortality that occurred amongst them, during the early part of the hot season here. Fever and dysentery are the causes of their death, chiefly given in the hospital returns, but these

were doubtless merely the immediate ones, rendered more active by long standing visceral derangements, schirrous livers, broken down constitutions, and the fatigues of incessant duty. Therefore, the casualties that took place at first, are not particularly attributable to the climate of Aden, but would probably have happened in the regiment, under corresponding circumstances in any part of India.

The diseases which the medical officer is directed chiefly to report upon by the Medical Board, are fever, hepatitis and dysentery and these are the most common and important diseases at Aden, as in India.

Fever. The fever most frequent here, is an intermittent one of the tertian type, in general unaccompanied with any particular visceral derangement. An emetic and general bleeding, should the patient be young and robust and have much head-ache, are what I usually prescribe on his coming into hospital ; and afterwards purgatives and diaphoretics till the skin becomes cool, the tongue clean and the secretions natural. The quinine is then given, only to the extent of eight or ten grains a day, and the disease is generally subdued in the course of a week. Several severe cases of continued fever occurred last July and August, when it was necessary to use mercury ; but instances of this kind appear to be rare at Aden, at least hitherto, and the cases of fever that have occurred, whether among the men or officers since I received charge of the Regiment, have been manageable and of short duration and therefore do not require further remark. The total number of fevers, remittent and intermittent admitted during the year, is two hundred and forty one, of which only two have died.

Hepatitis. This has not hitherto been a disease of frequent occurrence at Aden, and nearly all the cases I have had in hospital, were rather relapses or recurrences of the complaint, in persons long subject to chronic hepatitis, than an original and new disease. In the two cases which terminated fatally (one of which was admitted as fever) the liver was almost wholly converted into the cyst of an abscess and its exterior surface exhibited scars and old adhesions, the result of former and long standing disorganization. The generality of cases of hepatitis, have yielded readily to general and local bleeding and mercury, and have shewn no peculiarity of any kind. The comparative mildness of this disease at Aden, may be chiefly attributed to the temperate habits of the men, who have no means of obtaining more than their regimental allowance of spirituous

liquors ; and to their exemption from much exposure to the sun, neither duty nor amusement leading them much into the open air. The total number of cases of hepatitis during the year, is sixteen, of which, two proved fatal.

Dysentery. This is the most formidable disease at Aden, both as respects its frequency and its dangerous character. The dysentery of Aden as far as my observation extends, is precisely similar to that of the coasts of India generally ; but here, a particular relaxation and torpor of the constitution acts unfavorably on the patient, and at the best, much retards his convalescence and final recovery. For this reason, general bleeding is objectionable when it can be dispensed with, but it is not always easy to distinguish cases of that kind, either here or elsewhere ; for, an active inflammation may be insidiously going on in the abdomen without any clear indications of the mischief. To avert this evil, I have generally employed bleeding in the treatment of severe cases of dysentery, nor when the cases proved fatal, have the appearances on dissection ever made me regret having done so. After the usual preliminary doses of castor oil and of calomel and opium. I generally prescribe the dysenteric pills of pilul. hydrarg. pulv. ipecac. and pulv. Jacob, but should there be much blood in the stools, I employ the acetate of lead, to the extent of five or six grains three times a day, always combined with dovers powder or pulv : cretæ. c. opio. The large doses of the acetate of lead have a powerful effect in checking the internal hemorrhage, nor have I ever observed any inconvenience to the patient from their use, even when continued for several days in succession. In addition to this, I give scruple doses of calomel at night, and introduce mercury into the system by friction, and when the evacuations have become natural or nearly so, begin with astringents and tonics under various forms and combinations. But here, as everywhere in India, the sequelæ of dysentery are often more obstimate and unmanageable than the disease itself, and the patient too often relapses or after long lingering, dies, from absolute debility. The total number of cases of dysentery and diarrhœa during the year, has been one hundred, of which, nine have proved fatal.

If the climate of Aden has any morbid peculiarity, it consists in its unfavorableness to convalescence from acute disease. In these cases, a languor and want of action in the system, continue long after the removal of the immediate cause, and a change of air becomes essential to the patient's complete recovery. This is distinctly the case even in the cold season, and it must be much more so, in the hot

one; and in this point of view Aden will be found a most trying and enfleebling station to an European Regiment, should much sickness prevail. The men treated in hospital might be discharged cured, but they would remain convalescent. Our hostile relations with the interior, unfortunately prevent our forming a station for invalids on the high lands there, which would doubtless save many lives, both native and European, and also the expense and delay attendant upon sending diseased men to Bombay.

Those ulcers which have appeared so extensively and formidably amongst the native troops at Aden, have not hitherto affected Europeans in a single instance; though it is a general, and I think well founded opinion here, that wounds and sores are much more tedious in healing at Aden than in India. In cases of local inflammation, &c. I frequently make issues with potassa fusa, and I have observed that these, instead of shewing that tendency to granulate and cicatrize, which is often so inconvenient to the surgeon, when he wishes them to be kept open for a length of time, are very languid in their action and even require to be stimulated, before they will heal. But they have never shown any tendeucy to a morbid or malignant action. which proves that it is not the contact of the atmosphere with a denuded surface that causes the inveterate ulcers of Aden, but rather something constitutional in the individual suffering from them and dependent upon diet and mode of life. The Portuguese at Aden are as free from these ulcers as the Europeans, which I attribute entirely, to their using animal food and spirituous liquors, as the latter do.

I am happy to state, that no instance of spasmodic cholera has occurred at Aden amongst either the European or native troops, and it would appear, that the inhabitants of the town, both Jew and Arab, are unacquainted with the disease either by personal observation or hear-say.

Strength,.....	724	On the 31st Dec. 1839.
Included in the returns,.....	345	
Absent on command beyond the division.....	379	
Total	724.	

Number of sick remained 31st December, 1838.....	None.
Admitted in 1839.....	670
Discharged.....	627

Died in Hospital	20
Remaining 31st December, 1839	23
Average daily number of sick for the year	23
Average number of convalescents	none
Died without receiving medical treatment	2

ADEN,
1st. January 1840.

Article VI.

Report on the Cases of Aden ulcers received into the Marine Battalion Hospital, Bombay 1839. By A. Campbell, M. D.

Presented by the Medical Board, May 1840.

Having been ordered on the 16th August last, to do duty under Surgeon Burnes, K. H. of the Marine Battalion, I was directed by that officer to devote my attention exclusively to the care of forty-four cases of Sepoys, chiefly of the 24th Regiment N. I. received from Aden, with foul sloughing ulcers. Of these cases, twenty-six were only disembarked from the transport on the day I joined; and having had a passage in a crowded vessel of twelve days, the fœtor of the ulcers was intolerable, while the ulcers themselves, without a single exception, had a foul appearance. The remaining eighteen cases were previously in the Marine Battalion Hospital; having been received from Aden on the 2d July, and with one or two exceptions, were doing well.

It is not my intention to enter into any lengthened disquisition, on the nature of the manifold exciting causes of this class of diseases in general. One thing I cannot help remarking, however, in reference to the present cases, is the fact, that all the ulcers, with a single exception, have been confined to the anterior part of the leg, dorsum of the foot and heel; a peculiarity to be observed in almost all sores of this description. I cannot think, that the explanation offered of this phenomenon, is altogether satisfactory, viz; "that by their distance from the centre of circulation, the supply of blood to them must be languid." Now these parts are by no means the most remote, and were this the only cause, why do we not oftener meet with ulcers on the toes, sole of the foot, and back part of the leg? I am led to consider, that it admits of a more sensible explanation, in the fact, that there is less cellular and adipose tissue in these situations, to act as a bed for the nutrient vessels, and also as a cushion to modify the force of any external injury, which the close connexion of the integuments to the bone, must materially favor. That the feeble

state of the nutrient vessels is a most powerful cause, is proved by the fact, of old cicatrized ulcers spontaneously breaking out again, in cases of long exposure to debilitating causes. These cicatrices being but sparingly supplied with blood and possessing but little vitality.

With reference to the cases now under consideration; from all I could learn by the reports sent from Aden, or glean from the statements of the patients themselves, they seemed to have been exposed to none of those exciting causes which are considered essentially necessary to the production of this formidable class of diseases. On the contrary, their food was uniformly of good quality and procured in abundance, their clothing and quarters clean, and comfortable. The only complaint they seemed to urge, was hard duty, and exposure to intense heat of the Sun, to which they had been subjected.

This with some specific morbid condition of the atmosphere, seems to have so charged their systems with this taint, that the most trivial scratch was speedily converted nito an extensive phagedena advancing with most fearful rapidity, in spite of all the remedies employed. Finding that its progress was not influenced by the means resorted to; a change of air was deemed expedient and to attain this object the ywere sent to the Presidency.

The character of all the sores seemed to be pretty nearly similar; the peculiar features and constitutional disturbance answered exactly to the appearances of true scorbutic ulcers, as described by Military and Naval writers. They were for the most part, extensive and ill conditioned, with raised, ragged and discoloured edges, the natural color of the skin preventing the true livid appearance (as described by authors) to be detected. The surface in most cases was covered by a reddish brown, sometimes gray slough mixed with clots of blood, raised considerably above the level of the surrounding integuments and in two cases, projecting so as to assume the appearance and character of a fungous growth. On the separation of these sloughs, some of which were remarkably tough, tenacious and firmly adherent; the disease was found to have penetrated to a considerable depth, involving all the textures, and exposing the different structures, as nicely dissected, as if they had been prepared for anatomical demonstration.

This appearance of extreme depth was however, somewhat deceptive, as the effusion into the subcutaneous cellular tissue, tended to thicken and raise the skin and made its surface appear much higher than it really was.

The sores were exquisitely tender, and the slightest touch was

followed by an oozing of blood more or less considerable. A thin bloody acrid serum seemed to take the place of healthy pus, and the fœtor from the sore was intolerable. All complained of burning pain in the sore, invariably aggravated at night, when their suffering was truly distressing, requiring the strongest narcotics to induce sleep, or a remission of their tortures.

The limbs to a greater or less extent, were swollen and tense to the feel, the color of the skin prevented our being able with precision to detect the ecchymosed patches — a peculiar feature in this disease, but which was established by subsequent appearances on dissection. This tenseness of the limbs seemed to be a source of much irritation.

The constitutional disturbance in general, was in ratio to the size, extent, and intensity of the local affections; in some cases, the gums were spongy and sore; in others, a peculiar metallic taste in the mouth was complained of; in one case, in which the scorbutic taint was strongly marked and who died from scorbutic dysentery; pain, bleeding from the gums and looseness of the teeth were prominent symptoms. All the patients complained of pains in the limbs, back, &c. and in the more severe cases, great restlessness and a countenance denoting most distressing suffering and anxiety, was visible. In general, the pulse was weak and stringy; tongue clean, and bowels for the most part regular; slight diarrhæa occasionally supervened but easily yielded to ordinary remedies. The disease progressed rapidly, involving muscles, bones, and tendons, and in several instances large portions of tendons sloughed off; in one case, where the ulcer was situated over the heel and extended considerably up the back part of the leg, about two inches of the tendo achillis sloughed away —I did not despair however of good motion being preserved to the limb (nor was I disappointed in this case) from the numerous examples in which, tendons have been divided on account of malformation.*

Treatment. Immediately on admission, the greatest care was taken to separate the cases not only from the other patients in Hos-

* In some experiments which I had occasion to carry on last season in London, I found, that by dividing the tendons of rabbits, even under the most unfavourable circumstances; where the animals were allowed full scope to jump about, thus separating the edges of the divided tendons to a considerable extent, from the immense lever and force exerted by the animal in its motions, all being performed by a spring from the hind legs; still under such circumstances, union was effected, leaving no deformity and I afterwards found on dissection, that the intervening space, which was considerable, was filled up by a substance resembling in all respects, tendinous structure.

pital, but even from themselves; with this view, Dr. Burnes directed them to be distributed between the Marine Battalion Hospital itself, and a large Barrack and school room. Notwithstanding, the cases of ulcers already healed immediately put in an unhealthy action, and in a short time assumed the same character and severity as the recently admitted ones.

The strictest attention to cleanliness was enforced and each patient was furnished with rags, lint, &c. A fresh vegetable diet was enjoined and a plentiful supply of fresh fruits (pumeloes and plantains) distributed; in a few cases, animal food was recommended.

The external applications and internal remedies employed were various. Of the former, hot turpentine and resinous dressings; cataplasms of linseed, pumpkin, and carrot; poppy head fomentations, solut: opii: with the view of allaying the excruciating pain in the sore, solut: cupri sulphat: solut: nitr: potass: acid: nitric: dilut: Creosote although highly recommended, appeared to me to serve but little purpose beyond relieving the intolerable fœtor from the sores; with this view also, charcoal and chloride of soda were employed.

Of the internal remedies; in addition to those already cited, a formula containing lime juice, port wine and infusion of cinchona, was freely employed; in some cases, with the slight modification of arrack and sulph: quininæ in others solut: nitrat. potassae and acid: nitric: dilut: Of course, the free use of opium and other narcotics was found indispensable to relieve the excessive pain and restlessness.

These various remedies were had recourse to, in the hope of being able to form some estimate of their respective value; this object was however frustrated by the frequent changes from one set of medicines to another, which it was found necessary to adopt; the system ceasing to be so influenced, by a continued application of the same stimuli.

The diluted nitric acid seemed to be the remedy whose action was best marked; it was employed externally and internally and seemed to be most efficacious in arresting the destructive process and in determining to the separation of the tough and adherent sloughs. I did not in any case, perceive the physiological effects attributed to a continued use of this acid.

On the appearance of a healthy action in the sore, strapping and bandaging were employed; to a careful application of which means, much of the success is attributable. Indeed, in a certain state of the affection, and when carefully and properly applied, no class of remedies are so useful or on the other hand, so injurious, as when applied in a careless and slovenly manner; exerting unequal pressure over the limb &c. In almost all the cases (especially in the more severe

ones) after a healthy action had been for some time established, and the sore was determining rapidly to a cure, an unhealthy spot wonld suddenly shew itself, gradually extend and at last reduce the whole sore to its original condition. This however, generally gave way in a few days to the healing process again.

In two cases alone, I had occasion to amputate; these cases and their results shall be given in detail.

The means above related and a thorough draught of fresh air, a removal from the exciting causes of the affection, change of air, the moral effect of being again in their own country and near their relatives and friends, must have aided in no small degree to their restoration.

Of the efficacy of moral treatment we find the good effects in Captain Parry's narrative, where by amusing and occupying the minds of his crew, by representations of plays, masquerades, &c. he managed to preserve them exempt from scurvy, under circumstances most favourable to is production.

Pathological appearances. I was fortunately able, by a little management, to obtain an inspection of a few of the bodies after death; the appearances as they presented themselves, I shall now report.

The bodies were generally emaciated and the whole extent of the affected limb much swollen. The immediate seat of the affection presented one pultaceous mass, without the slightest vestige of its original structure. On making an incision through the surrounding integuments, the soft parts were found to be comparatively healthy, although the skin was undermined to some extent by the disease; the incision was followed by the escape of a quantity of serum.

On dissecting the muscles in the immediate vicinity of the sore, large masses of effused blood in black clots, were found to occupy the intermuscular spaces; this with the effused serum noticed above, was doubtless the cause of the swelling and tenseness observed in the limbs. The bones were carious to a greater or less extent and demuded of their periosteum, in general, considerably beyond the margin of the ulcer; this membrane to a still more considerable extent, was observed to be much thickened, and in parts raised and separated from the bone by clots of blood, in other instances by the effusion of a large quantity of bloody serum, which raised the membrane, giving it a pouch like appearance.

The thoracic and abdominal viscera were found in a healthy state although slightly paler than natural. From regard to the prejudices of the friends, I was unable to carry my examination, to the head.

In conclusion, it is satisfactory to state, that of these forty-four Aden cases, nineteen have been discharged from Hospital, whilst seven only have died; and that the remaining eighteen although still in the list, are almost entirely cured of their ulcers: although the amputation case and it is probable, also some others, must eventually be brought before an invaliding committee.

Bombay, January, 1840.

Article VII.

Practical observations on the pathology and treatment of Tropical Dysentery. By James Bird, Esquire.

Presented, June, 1840.

The diversity of opinion, regarding the nature of Tropical dysentery, and the various modes of treatment proposed for its cure, are very perplexing to any one who enters the practice of medicine, and is first called on to stop the ravages of this disease; modified as it may be by circumstances of original constitution, influence of climate and of season, acquired habit of life, and complication of distant organs. The contradictory sentiments entertained on the efficacy of particular remedies, such as opium and purgatives, seem to sanction a conclusion, that the things, with which medical observation is conversant, are of that obscure and deceptive kind, as not to be reducible to the ordinary analysis of inductive philosophy. But, may we not infer, that such differences of opinion have arisen from too limited experience in varieties of this disease, and the hasty conclusions which individuals who see the success of any particular practice, are apt to adopt. Causes such as these, appear to me, to have produced the opposite opinions which have been given on this subject, and if the present paper can in any way tend to reconcile them, by conveying more precise ideas regarding the varieties of dysentery, and the efficacy of particular remedies, useful in some, though hurtful in others, the object of the writer would be fully attained, though it be more than he can hope for. An experience, however, of twenty years in the various climates of this Presidency, embracing the flat and malarious country of Gujerat, the dry and salubrious atmosphere of the highlands in the Deccan, and the generally hot and moist, but changeable air of Bombay, encourages him to hope, that the attempt to particularize the varieties may have its utility.

The division of dysentery into acute and chronic, meant to point out its greater or less severity and the period of its duration, scarce-

ly conveys true notions of its character, or probable result. In deference to custom it may be retained, though it conveys no idea of the real difference of the varieties of this disease, excepting its comparative severity or recent existence; and under this limitation, acute attacks of dysentery embrace four distinct varieties, 1st the phlogistic or inflammatory, 2nd the cachectic, 3rd the hepatic or complicated, and 4th the scorbutic. It is not my intention at present to notice the last, but the following are the symptoms which characterize the three other varieties.

Phlogistic dysentery. While, in this variety the calls to stool are ineffectual, the fœces retained, or blood and mucus are passed with much tormina and tenesmus, there is, generally, fixed sharp pain in the umbilical or hypogastric regions; increase of temperature accompained by fulness of the abdomen; much thirst; white tongue; unatural frequency of pulse; and sometimes febrile heat of skin. The last is not invariably present, and forms no part of the essential character of fever in the tropics; where, a moist and heated atmosphere, at particular seasons of the year, causes moisture of the skin, while all the other symptoms of fever are present.

This variety in its mildest form sometimes commences as a simple diarrhœa, which goes on increasing till the stools become mucous, frequent and scanty, are accompained by tormina and tenesmus, without fixed pain in any part of the abdomen. In this *dysenteria mitis*, it is difficult to say where diarrhœa ceases and dysentery begins. It is the form, however, in which I have generally seen the disease among Europeans in Gujerat, and, if early attended to, is easily subdued. The following extract from my quarterly report on diseases among the men of the horse artillery, stationed at Kaira from February to May 1822, is a sufficiently explicit account of this kind of phlogistic dysentery. The symptoms were generally those that appertained to diarrhœa mucosa, and, if not remedied by medicine, were disposed to degenerate into a well marked inflammatory affection of the intestines, attended by fever. In almost all cases, there were copious mucous dejections, griping pain, and spasmodic affection of the colon. The abdominal parietes about the umbilicus felt hard and knotty; the evacuations of mucus were more copious and liquid and the tenesmus less uniformly present than in cases of severe dysentery. A sympathetic pain on the edge of the ribs of the right hypochondrium sometimes accompained the looseness of the bowels, but disappeared when the inflammation of the colon was removed.

Cachectic dysentery. In this, the symptoms are nearly those of phlogistic dysentery, from which, however, it is to be distinguished by the abdomen being generally collapsed, the pain duller, and at first less diffused, the pulse small and irritable, or at first little excited; while, the languor and oppression are great, the skin covered with moist and clammy perspiration or affected by chills, and there are marks of a languid circulation or scrofulous constitution. If the symptoms have been preceded by emaciation, and the bowel-complaint attended by intermitting fever of a hectic character, these will be sufficient to point out the probable nature of the existing bowel-complaint, which I have frequently known as the earliest symptom of tuberculous formation in the liver or lungs.

This form of the disease is sometimes seen among men recently arrived from England, who, when on the passage hither, neglecting exercise and the regulation, by medicine, of the alvine evacuation, allow the mucous follicles to become enlarged; and which, in this state, only require intemperance and the influence of atmospheric changes to force them into a state of active inflammation, which sooner terminates in ulceration than when the dysentery is purely phlogistic. Those long resident in India, whose constitutions have been weakened by repeated attacks of fever, and who have suffered much from symptoms of strumous dyspepsia, are particularly liable to suffer from attacks of this variety. The irritability of constitution, which accompanies the dysenteric symptoms, is usually great; the emaciation progressive; and the patient troubled with nightly febricula or copious perspiration.

Hepatic dysentery — is disease in the large intestines, complicated with temporary derangement in the circulation of the liver, or progressive disorganization of its structure. In its purely phlogistic or active form, the dysenteric symptoms are accompanied by a yellow loaded state of the tongue, pain at the epigastrium, or right side, and scanty secretion of urine, which is high coloured and passed with scalding. The once prevalent belief, that almost every attack of tropical dysentery is connected with disease in the liver, is admitted to be fallacious, but temporary erethism of this viscus, and copious secretion of acrid bile, are common accompaniments of dysentery, among new comers within the tropics. The strumous form of liver disease, complicating dysentery, is marked by the usual symptoms of its cachectic variety, greatly impaired tone of the stomach; occasional dull pain in the right side; the food passing undigested through the bowels,

and the secretion of urine yielding a copious white sediment and effervescing strongly with muriatic acid.

Dysentery may be also complicated with intermittent fever, or disease of the lungs; which add to the danger of this affection, and embarrass the medical man in applying remedies for the cure of this formidable malady.

Chronic Dysentery — is the effect of the acute kind, and is marked by the fœces not being retained, the stools being frequent and fœcal, as in cases of diarrhœa, but here accompanied by dysenteric excretions of blood and mucus, passed with occasional tormina and tenesmus. In this form the appetite is variable and capricious; eating is generally followed by flatulency, and uneasiness in the abdomen; weakness and emaciation are present; the stools which are copious, vary from watery yellow, mixed with undigested food, to the appearance of rice water; thirst great; and tongue white or glazed, and furred at the base.

Pathology of dysentery. The examination of the body, after death, discovers in the phlogistic form of this disease, inflammation of the mucous membrane of the large intestines, which occupies a greater or less extent of the canal, in proportion to the severity of the symptoms. It is found in various states of progress from simple inflammation, accompanied by hypertrophy of the tissues subjacent to the mucous membrane, to a state of gangrene, or continuous ulceration of considerable extent, between the spots of which, the unabraded mucous coat exhibits a bright red vascularity, or dark slate colour * as in plate I. This slate-brown, or grey colour, is considered by Andral, as specially belonging to chronic irritation, to which an acute one often succeeds, giving rise to the symptoms of the true phlogistic dysentery, as happened in the case, from which the morbid appearances in the above mentioned plate were delineated. In this instance the patient died a few days after he was attacked, and as the large intestines were also much hypertrophied, this state must have existed long prior to the active inflammation which supervened and terminated in ulceration. Several similar examples have come under my observation, in which it was evident from the rapid progress of the disease, to a fatal termination, from the period when the dysenteric symptoms were first manifest, that this thickening of the intestines has its origin in pre-

* *Note by the Secretary.* It has been found impracticable to have copies made of the drawings referred to in this paper.

vious inflammation of the sub-mucous cellular tissue. It was impossible to ascertain the previous history of the patient's health where such appearances were observable; but it is probable, they were connected with the existence of previous diarrhœa. The following cases will illustrate this state of chronic irritation, on which is grafted acute inflammation producing dysentery.

Case 1st. Gunner Larkins, aged 28, and resident three years in India, was admitted into the Artillery hospital at Bombay, on the 4th of November 1825. He complained of having frequent ineffectual calls to stool, and of being able to evacuate nothing from his bowels but small quantities of bloody mucus; had severe tenesmus, accompanied by general tenderness of the abdomen, nauseous sour taste, white tongue, much thirst, heat of skin, and fulness of pulse. Was bled, on the first and second day of his admission, to 40 ozs. used the warm bath, had calomel with large doses of opium, followed by castor oil, and had leeches with a blister to the abdomen. Died on the 4th day after his admission in a convulsive fit, during the administration of an anodyne enema.

Inspection. — The cardiac extremity of the stomach internally presented a bright red vascularity, and the villous coat thoughout was covered by thick adhesive mucus. The contents of the stomach consisted of green bilious fluid and mucus; the small intestines were natural in appearance but distended by flatus; the valve of the cœcum was thickened and contracted. The large intestines were thickened; — the mucus coat ulcerated; and such parts of it as remained entire were of a slate colour and inflamed, but without any appearance of mortification. The liver was of a reddish purple colour, diversified on its surface by white spots. When cut into similar spots, were observable, and the inter-lobular tissue, between each, was of a bright red. The spleen was natural. The lungs were not fully collapsed and there was a great degree of congestion in the vessels of the pia mater.

In the above case the interlobular tissue was more vascular than the glandular secreting substance, and this diseased state may have been of contemporary origin with the chronic irritation of the sub-mucous tissue of the intestines, which produced the hypertrophy.

Case 2nd. John Johnson, seaman, aged 25, and just arrived from England, was admitted on the 25th December 1825 into the European General Hospital, and complained of dysenteric symptoms. He had pain increased by pressure at the epigastrium; frequent thin bloody stools passed with tenesmus; tenderness in the site of the colon; foul tongue; much thirst; scanty urine; and a pulse beating 120 but soft. He was bled from the arm to twenty ounces and fainted, had leeches and a blister applied to the abdomen, used the warm bath, took pills of calomel, ipecacuan and opium, and was purged with balsam of copaiva in large doses. He died on the sixth day after his admission, and the eleventh from the time when the symptoms became urgent.

Inspection. The mucous coat of the stomach near the cardiac extremity and along the whole of the great curvature, was of a dark red colour, and very vascular. A similar appearance was observable in the mucous coat of the duode-

num. The jejunum and ileum, which were distended with flatus, were healthy, excepting that ecchymosed spots were, here and there, observable on its villous covering. Several extensive ulcerations occupied the mucous coat of the colon, which was partly separated from the cellular tissue, and was floating loosely on the edge of the ulcers. A red adhesive matter was found on the surface of the ulcers, and adhered to the sub-mucous tissue. The whole of the large intestines were in a state of hypertrophy. The omentum was considerably wasted, shrivelled up towards the stomach and carried with it the colon. The right lobe of the liver was enlarged and softer than natural; its peritoneal covering also exhibited a mottled black and red appearance. The heart was pale and flaccid; and the lungs natural. Externally, the countenance was collapsed; the eyes sunk; and the body muscular.

It is scarcely possible that the degree of thickening which the large intestines exhibited in this case could have taken place in an illness of eleven days. The inflammatory appearances observed after death are of a somewhat congestive character, derived probably from the disproportionate muscular power of the heart to support the tone of the circulation in the capillary vessels of a large muscular man. The pulse, in the beginning of the disease, was frequent but soft; and one general bleeding of twenty ounces was attended by much faintness, indicating that the toleration of the system for bleeding was not great.

In the cases now quoted, the state of hyperœmia was not confined to the large intestines, which are the seat of dysentery, but extended to the stomach and liver; a very frequent, but not necessary complication of the disease, as we meet with it in this country. The following is an example of extensive disease in both small and large intestines, accompanied by a healthy state of the liver.

Case 3rd. Matthew Brown, aged 28, was admitted into the 17th dragoon hospital, at Kaira, in Gujerat, on the second May, 1818. He had copious discharges of blood and mucus, mixed with green matter and passed with much tenesmus; his stomach was irritable and ejected every thing taken into it; there was much pain about the umbilicus, unattended by any fulness of the abdomen; and these symptoms were attended by a feeling of much prostration and debility. He had been lately, while in Malwah, labouring under a similar disease, which detained him two months in hospital. The medical man, under whose charge he was, ordered grain doses of calomel every two hours, to be given along with an effervescing draught until his mouth became sore, a blister was applied to the abdomen, and emollient enemata used at intervals. This treatment removed, in some measure, the irritability of the stomach, but produced no alteration in the state of the intestinal evacuations, which continued green, bloody, and mucous, even after the mouth became fully affected with mercury. Latterly, the irritability of the stomach returned with increased violence, and nothing but wine and sago was retained till the period of his decease, which happened on the 26th May, or the twenty fifth day after his admission.

Inspection. The mucous coat of the cæcum, colon, and rectum was exten-

sively ulcerated accompanied by hypertrophy. At the pyloric orifice of the stomach the villous covering was abraded in several places; and in other parts, it was covered by a dark brown viscid matter, which firmly adhered to it. The small intestines, which were much inflated, were inflamed, and partly in a gangrenous state. The spleen were unusually large; and the liver was healthy.

In the succeeding case, where I had an opportunity of watching the progressive derangement of the patient's health, and of ascertaining, twelve months after an attack of simple dysentery, the state of the large intestines, it appeared, that the dysenteric affection was symptomatic of increasing disorganization and inflammation in the interlobular substance of the liver, and accompanied by disease in the sub-mucous tissue of the stomach.

Case 4th. Gunner George Thould, aged 22 years, and of dissipated habits, was admitted, on the 16th July 1822, into the Horse artillery hospital, at Kaira, and was suffering under an attack of diarrhœa; of which the symptoms were a purging of green mucous stools, some tenesmus, white tongue, and tenderness to the left of the umbilicus. Was discharged on the 26th and re-admitted after hard drinking on the 3rd September. At this time, he was labouring under an attack of acute hepatitis attended by bilious purging and tenesmus, was bled to forty ounces, and a blister applied, was freely purged and took calomel till its constitutional effects were produced. Discharged on the 18th of September and re-admitted on the 29th with purging of bloody mucus. The symptoms were those of phlogistic dysentery combined with hepatic affection, and febrile symptoms; was bled from the arm till he fainted, used mercurial inunction, took calomel with opium, until his mouth became sore, had anodyne enemata, and was purged with castor oil. Discharged cured on the 10th October. Continued his dissipated habits, and had diarrhœa in November; was affected, in May 1823, with hepatitis; and returned to hospital in June of the same year, with pain in the left breast, a tickling cough, spitting of blood, and looseness of his bowels. Said that the cause of his present attack was a fall from his horse. Died on the 24th of September.

Inspection. Previous to examination of the several organs in the abdomen, I tried to inject the liver, with red size injection from the vena porta, but failed. Minute injection was then thrown into the aorta, and the following were the appearances. It had passed into the inflamed spots observable on the mucous surface of the stomach, beneath which, it had an effused appearance, and occupied the cellular coat, which seemed the chief seat of the inflammation. The small intestines, which were filled with flatus, were bright red externally, and the large ones dark blue. The mucous coat of both seemed to be natural. The liver was prodigiously enlarged, occupied both hypochondria, and was of a buff colour. Throughout this buff coloured substance innumerable bright red points were seen, giving it a granular appearance. In the upper part of its right lobe a large cartilaginous tubercle was found, and, at this point there was an adhesion between it and the diaphragm. The right lung contained three or four pints of sero-purulent matter, and was the cause of death. In the right ventricle of the heart there was a semi-organized mass of adhesive matter.

Many facts, similar to those now detailed, might be quoted; but from the cases given in illustration, the following inferences may be made: 1st Active inflammation of the mucous membrane of the large intestine, producing symptoms of dysentery, frequently follows chronic irritation of the canal and thickening of the cellular coat. It proceeds rapidly to ulceration, and though, not necessarily complicated with disease in the liver, is frequently combined with hyperœmia in the interlobular substance of this viscus, constituting the hepatic variety of phlogistic dysentery. 2nd, Dysentery may exist where no marks of ulceration in the large intestines are observable after death; and the disease is frequently symptomatic of progressive disorganization in the structure of the liver. An imperfect outline of the phenomena of these various states of phlogistic and hepatic dysentery can only now be given; and I proceed to consider the nature of the cachectic variety.

In *cachectic dysentery*, the process of ulceration is connected with a more atonic state of inflammation than is observable in cases of the phlogistic kind. The aggregated, or solitary follicles of the intestines are enlarged, previous to the inflammation of the mucous membrane which terminates in their ulceration; and sometimes, tuberculous matter deposited in the sub-mucous tissue, produces inflammation and abscesses, which burst through it. In both instances, the ulcers are of an oaval or circular form as in plate II; and cream coloured tubercles, or small distinct abscess in the liver, complicate this variety of dysentery. The disease frequently proves very intractable, and is less under the dominion of medicine than the purely phlogistic and hepatic varieties. Frequently, one set of ulcerated follicles heal up, while others become inflamed and renew the symptoms of dysentery which have for a time disappeared. The following will illustrate this variety of disease.

Case 5th. Gunner George Geddes, aged 24 and just arrived from England, was admitted, into the artillery hospital, at Matoonga, on the 20th of November 1825. He complained of tenderness at the site of the colon, passed nothing but blood and mucus from his bowels, was suffering severely from thirst, griping, and tenesmus, had alternate chills and hot flushes, while his pulse usually numbered 86. He was bled, blistered, used mercurial inunction, with a warm bath, and took calomel with opium, till the gums became tender. The constitutional effect of mercury appeared to increase the irritability of the bowels and the frequency of the alvine evacuations. He died on the 26th following, and twentieth day from the time when he observed the first symptoms.

Inspection. The body was of natural appearance, but of slender make. The cœcum, which was internally much inflamed and ulcerated, had lost its

natural cohesion. In the transverse arch of the colon numerous small round ulcers were found; the sigmoid flexure was similarly ulcerated but in a less degree. The ileum where it joins the cœcum had a rough warty appearance from enlargement of its follicles. The glands of the mesentery were much enlarged; and the omentum, which was drawn up from the left side towards the cœcum adhered to this intestine and the abdominal parietes. The villous coat of the stomach, which had lost its natural cohesion, was easily torn by the nail and exhibited numerous purple spots, produced by effusion into the sub-mucous tissue. The liver anteriorly was of a reddish brown colour, and posteriorly, for several inches from its edge, was deep black. The lungs were fully collapsed but contained several white tubercles of a soft texture.

Case 6th Gunner Thomas Hoult aged 25 who had been three years in India, was admitted, into the artillery hospital at Motoonga, on the 10th of December 1825. He complained of dull pain at the umbilical region increased by pressure, had frequent ineffectual calls to stool, and passed nothing but bloody mucus. The thirst, griping and tenesmus which accompanied these symptoms were great; his pulse numbered 90 at admission, and increased after bleeding to 110; and febrile heat of skin with pain in his limbs was occasionally present. He was not benefitted by any remedy and died on the 5th day after his admission and the thirteenth from the time he observed the first symptoms.

Inspection. — The large intestines were thickened internally, and much ulcerated. The ulcerations, which were of a circular form, varied from a line to half an inch in diameter. The villous coat between each was of a light crimson colour. The glands of the mesentery were enlarged. Numerous grey tubercles, varying in size from a pea to a pins head, studded its substance, and were surrounded by deep purple discoloration, as represented in plate III. The villous coat of the stomach was of a light crimson colour and softened.

In chronic dysentery, which is the sequela of acute attacks, the mucous membrane is covered with patches of ulceration, there is a copious morbid secretion from the intervening unabraded portions, accompanied by hypertrophy of the coats and loss of power in the muscular fibres. As the cellular and muscular coats partake of the progressive ulceration, in these cases, the peritoneal covering frequently becomes affected, giving rise to a renewal of active inflammation, and effusion of adhesive matter between the serous surface of the different intestinal folds; where this is extending, whatever remedy therefore, diminishes the increased secretions from the inner part of the canal may sometimes increase the inflammation which has extended itself to the serous covering and, in the indication of treatment for this variety, it is necessary to bear these facts in mind. Whether the original attacks be of the phlogistic, or cachectic varieties, if the chronic form be of long standing, the secretory function of the liver becomes involved in the disease.

Treatment of dysentery. In reference to the facts just detailed on the pathology of this disease, we may deduce the principle that dysentery in its origin, is a highly inflammatory one, deriving much of its peculiar character from the nature of mucous surfaces, whose secretions are increased under states of hyperœmia. In the milder forms of it, this increase of secretion is calculated to wear out the vascularity of the membrane on which it depends, the mucous surface recovers its healthy condition, and a spontaneous cure is effected. But when repeated attacks of this kind have caused hypertrophy of the intestinal, coats and their natural secretory functions are consequently impaired — active inflammation supervening on such a state runs rapidly into ulceration; to prevent which is our chief object in the treatment of the disease.

In this as in other inflammations, the indication may be best fulfilled by the vigorous use of general and topical blood-letting, according to the type of disease, the constitution of the patient, and the character of the climate or season under which attacks take place. Sometimes, the epidemic constitution of the season may give rise to the congestive or typhoid varieties of dysentery, in which, a too free use of the lancet might not be followed by successful results; but where such causes do not contra-indicate its employment, it will be found the most successful method of stopping the progress of phlogistic and hepatic dysentery, by preventing those fearful abrasions of the mucous membranes, which detain the patient long under treatment and render his chances of recovery doubtful. Three tables of the efficacy of blood-letting, in diarrhœa and dysentery, among men of good constitutions, are here subjoined. The remarkable exemption from relapses which the patients had, and the rapid relief from the symptoms which followed the use of the lancet, are satisfactory proofs that, where ulceration has not commenced, and the tuberculous constitution does not oppose the success of this and of medicine in general, blood-letting should be considered the first and most important remedy in the cure of phlogistic and hepatic dysentery. The bleeding must be carried to fainting, and if had recourse to within six or eight days after the appearance of the symptoms, the irritability of the bowels subsides, the stools become less frequent, and tenderness of the abdomen is relieved, and the general circulation is equalized. In many cases of phlogistic dysentery, even after the ulcerative stage had commenced, I have frequently used the lancet with benefit; but the operation here requires discrimination, and must be cautiously employed, where the existence of the cachectic variety may be suspected, or the tone of the constitu-

tion has been exhausted by climate or intemperance The tolerance of the system for this remedy must be estimated from the greater or less quantity of blood drawn before fainting is produced.

The cases given in table 1st were of a very severe description, and happened, among the recruits of both battalions of Artillery, at Matoonga, while I was Surgeon of the Regiment. The station of Matoonga, as is well known, was a particularly unhealthy one to European troops, both on account of the bad accommodation they had there, and the wet and marshy situation of the neighbourhood. Bombay dysentery was, therefore, generally seen in its severest form, and the deleterious use of ardent spirit mixed with chilly juice and fermented toddy gave to the disease a most formidable character. The other two tables have been extracted from the records of the European General Hospital.

Immediately after the bleeding, the patient should take twelve or fifteen grains of ipecacuan, with fifty or sixty drops of laudanum in a draught; and the tenesmus and tormina are generally much relieved by using at the same time, emollient anodyne enemata and the warm bath. If the symptoms of yellow loaded tongue, tenderness and fulness at the epigastrium, accompanied by scanty secretion of hot urine, indicate the existence of hepatic plethora affecting the upper part of the intestinal canal, it will be proper to unite the ipecacuan with five or six grain doses of calomel, and to administer next morning a purgative of castor oil, or compound powder of jalap with rhubarb. This will generally remove the acrid bilious secretion, which excites the canal, and, when ulceration has not commenced, increases the tormina and tenesmus connected with the inflammatory state of the large intestines essential to the character of dysentery. If the tenderness of the abdomen continues, the stools be scanty and mucous but not serous, the pulse of good strength and equable, the general blood-letting may be repeated, followed by leeches to the abdomen, or the sacrum, according as the colon or rectum appears to be the seat of inflammation. If the latter be affected, relief from tenesmus will be obtained by the frequent use of the hip bath, or a suppository of opium and suet. The Ipecacuan and laudanum, if the dysentery be phlogistic and uncomplicated by hepatic plethora in the upper part of the canal, may be repeated alone; but if otherwise, it should be accompanied by calomel, and followed by purgatives until the erethism of the liver has subsided, and the whole of the morbid secretions have been removed. Where the stomach is irritable and partakes in the inflammation of the large intestines it may be advisable to give the ipecacuan with solid opium in pills.

It is scarcely possible in a short sketch of this kind to enter on the consideration of the efficacy of particular remedies; but I may here remark that, after extensive experience in the use of Ipecacuan, I consider it the most important remedy in the cure of the phlogistic variety, next to the antiphlogistic measures of bleeding and blistering. It generally creates nausea and free perspiration, allays the tormina and tenesmus for several hours after its administration, and where it causes vomiting, relieves the upper part of the canal from the irritation of the acrid bile which accompanies the hepatic variety. It may be sometimes necessary, after full antiphlogistic measures have been taken, to produce the constitutional effects of mercury, but the practice will be found generally more successful among men sometime resident in tropical climates, than among those recently arrived from Europe. In inflammatory habits where mercury has been carried to its constitutional effects I have often observed colonitis produced by the medicine; and cases are frequently sent to the European General Hospital, where it is necessary to bleed the patient after being salivated on board of ship for dysentery, without blood-letting having been premised.

The following cases will illustrate the practice now recommended in phlogistic and hepatic dysentery.

Case 1st. Gunner Thomas Jones, aged 26, was admitted into the Artillery hospital on the 7th December 1825, complained of the usual symptoms of inflammatory dysentery; took some castor oil at admission, which purged him freely; and produced temporary relief from irritation of his bowels. Was bled to twenty five ounces on the 8th passed a bad night and took the following day Ipecacuan with laudanum. Had another bad night, passed slimy stools mixed with dark green matter, and complained of uneasiness on the edge of the ribs of the right hypochondrium. Was purged again with castor oil, used anodyne enemata, and was much relieved. Continued the Ipecacuan and laudanum on the 11th, was worse on the 12th; was bled again from the arm to thirty ounces, and experienced almost complete exemption from abdominal tenderness. From this date calomel and opium were given till tenderness of the gums and some salivation followed. Was discharged cured on the twentieth day.

Case 2d. Gunner James Christy, aged 23, was admitted into the Hospital at Matoonga, on the 20th of December 1825, was labouring under symptoms of the milder kind of phlogistic dysentery, and was passing slimy yellow stools mixed with blood. Took castor oil which purged him, but without relief; was bled to twenty five ounces and took a scruple of calomel, but experienced no diminution of the symptoms. Again bled to twenty five ounces; took calomel with tartar emetic and opium, and had emollient anodyne enemata administered. Next day was considerably relieved and complained less of tenesmus; but as his tongue was yellow and loaded and he suffered from excessive thirst; an ipecacuan emetic was administered, followed next morning by castor oil; and

though he complained of tenderness above the right groin in the site of the cœcum, the stools were passed without tenesmus. Pills of calomel and opium were repeated, and castor oil given as a purgative. Was discharged cured on the twelfth day after his admission.

In the above instances the disease was of the phlogisto-hepatic variety; and the apparently hurtful administration of ipecacuan and laudanum alone giving rise to the necessity of subsequently employing calomel, points out the impropriety of trusting to this remedy except in cases of uncomplicated phlogistic dysentery.

In our treatment of the cachectic dysentery, however acute the symptoms may be, it is advisable to be sparing in the employment of general blood-letting, and to trust the cure to the free application of leeches, blistering of the abdomen, ipecacuan and opium in pills, the use of the warm bath, and the administration of anodyne enemata. Purgatives must be used with caution, and those employed to carry off diseased secretions, should be of the mildest kind, such as castor oil, or sulphur with cream of tartar which has been recommended by high authority, and has been found from my experience to be extremely useful in allaying intestinal irritability. Where the habit is spare, the constitution debilitated by residence in a warm climate, and the stools consist of dark blood with mucus, the subnitrate of bismuth, or sulphate of copper, combined with opium, is a remedy well suited to fulfil the indications of cure. A large warming plaister should be kept constantly on the abdomen after the application of leeches, and the diet limited to articles of a farinaceous kind. But here change of climate and a sea voyage is of the first consequence for the recovery of the patient, and where circumstances permit of having recourse to the trial, the practice ought seldom to be neglected. The following cases will illustrate the treatment of this variety of dysentery.

Gunner James ————, aged 26, and a person of dissipated habits was admitted on the 17th March 1836 into the European General Hospital. Had previously suffered at different times from fever, and stated that he had been unwell fourteen days previous to admission. Was first attacked with fever of an irregular intermittent type, to which succeeded symptoms of dysentery, which were frequent purging of mucous stools, great tenesmus and tenderness in the hypogastric region. His tongue, which was white and loaded, was tremulous, his skin covered with clammy perspiration, his abdomen collapsed, and his pulse 104 and small. The principal treatment consisted of frequent leeching of the sacrum and anus, a warm bath nightly with pills of calomel, opium and ipecacuan, blisters to the abdomen, and purging by sulphur, which relieved the griping and allayed the irritability of his bowels. The calomel was only occasionally given with the ipecacuan and opium and seemed not essential to the cure. Was discharged from hospital after a month and eight days; had a

relapse in the middle of May, when he was again admitted into hospital, and treated nearly in the same manner. Was discharged cured on the 5th of July, and has since continued at his duty as a saddler in the Castle, suffering occasionally from fever and pain in the cardiac region ; he is now in tolerable health, looks sallow, and has abandoned his drunken habits.

It is unnecessary to multiply examples, as many similar to the above might be given ; and I now conclude this sketch of a formidable malady with a few short observations on its chronic variety.

Most cases of chronic dysentery, even when not connected in their origin with deranged function of the liver, seem to involve this viscus in the general derangement of the alimentary canal. It is here that the constitutional effect of mercury produced by inunction combined with the use of tonics, mercury, and chalk, with dovers powder, seems of the greatest utility. Frequent leeching of the abdomen to reduce urgent symptoms and prevent extensive inflammation among the intestines. Of tonics combined with opium, I have employed a variety ; but after numerous trials, I am disposed to give preference to a combination of sulphate of quinine with mercury and chalk and dovers powder. This, which maintains the tone of the stomach, appears to give healthy action to the skin, keeps in check the progress of hectic symptoms and diminishes the quantity of serous discharge. The addition of a few grains of powdered catechu seems sometimes useful, though I have occasionally known that it increased the irritability of the bowels.

Such is the imperfect outline of the varieties of dysentery which I have endeavoured to sketch ; and I claim no greater value for the facts than they intrinsically merit. I hope they may lead to further observation in this disease and discrimination in the adoption of remedial measures for its cure.

Table I.—*Return of Dysenteric cases among the Recruits of the Bombay Artillery, who arrived from England and were stationed at Matoonga in* 1825.

Date of admission.	Names.	Years of Age.	Diseases.	No. of general bleedings.	No. of ounces taken.	No. of local bleedings.	No. of ounces taken.	No. of days in Hospital.	
1826									
Sept. 7	Mathew Galvin....	25	Acute Dysentery	1	20	"	"	19	
Nov. 25	John Williamson.	31	ditto	1	25	"	"	14	Died in convulsive fit.
" 4	James Larkins	"	ditto	2	40	1	8	3	
" 20	George Geddes	24	ditto	2	50	1	7	6	Died exhausted.
" 26	Margaret Davis....	"	ditto	2	50	1	5	19	
" 28	Philip Davis.....	"	ditto	1	24	1	6	9	
" 30	Morris Neville.....	24	ditto	1	26	"	"	9	
" 26	John Tomlinson...	22	ditto	1	25	"	"	14	
" 20	William Thompson	21	ditto	1	20	"	"	23	
Dec. 4	Peter Cuffield	18	ditto	2	35	"	"	18	
" 7	Thomas Jones.....	"	ditto	2	55	1	5	20	Died and the liver was found full of tubercles.
" 10	Thomas Hault	25	ditto	2	44	"	"	5	
" 15	Stephen Crawford .	20	ditto	1	20	"	"	16	
" 16	Robert Ascomb	"	ditto	1	20	"	"	17	This was a case of dysentery combined with inflammation of the liver.
" 6	Edward Fairman ..	21	ditto	3	70	1	10	"	
" 20	James Austy.....	"	ditto	2	50	1	4	12	
"	John Pugh.....	"	ditto	1	25	"	"	9	
" 6	Henry Bannister...	20	ditto	1	24	"	"	31	
" 9	Henry Plaine	23	ditto	1	25	"	"	29	
" 31	John Faulkner.....	"	ditto	1	26	"	"	9	

Table II.—*Return of cases of H. Ms. 3d Foot, or Buffs, treated in the European General Hospital of Bombay in* 1827.

Date of admission.	Names.	Diseases.	No. of general Bleedings.	No. of ounces abstracted.	No. of times bled locally.	No. of ounces abstracted.	No. of days in Hospital.	No. of days unwell before admission.	No. of relapses
June 29	James Garret	Diarrhœa.	"	"	2	16	13	14	"
July 10	Dennis Murphy	ditto	1	32	1	20	43	3	"
" 3	Mrs. Murphy	ditto	"	"	"	"	19	1	"
June 27	William Branzley	ditto	1	32	"	"	13	5	"
" 27	Joseph Woodly	ditto	1	40	"	"	13	3	"
July 3	John Stewart	ditto	1	20	"	"	11	4	"
" 3	William Palmer	ditto	1	24	1	20	11	2	"
June 19	Thomas Riley	Dysentery.	1	32	"	"	19	5	"
July 1	James Dayman	ditto	1	48	1	6	13	5	"
" 1	Charles Thompson	ditto	1	50	1	20	15	5	"
" 1	Daniel Watson	ditto	2	64	"	"	16	3	"
June 20	Nicholas Murphy.....	ditto	"	"	"	"	27	5	"
July 14	Michael Carrol	ditto	1	48	"	"	6	1	"
" 14	Mr. Nutts.....	ditto	1	48	"	"	5	7	"
June 23	James Whitehead	ditto	2	64	"	"	23	4	"
July 11	William Baird.....	ditto	3	80	1	8	13	3	"
" 17	Michael Doran	ditto	1	50	"	"	36	1	"
" 10	Peter Ferry.....	ditto	1	18	1	6	36	2	"
" 19	Mrs. Pollock	ditto	1	20	"	"	5	5	"

Table III. — *Return of Sick of H. M. 3d Foot, or Buffs, who embarked Convalescent in the Milford, Bombay 25 July, 1827.*

Date of admission.	Names.	Diseases.	No. of times bled generally.	No. of ounces abstracted.	No. of times bled locally.	No. of ounces abstracted.	No. of days in Hospital.	No. of days unwell before admission.	No. of relapses
July 22	William Halfpenny	Diarrhœa.	1	24	"	"	4	3	"
" 11	Henry Mair	ditto	1	24	"	"	14	4	"
" 18	Michael Regau	ditto	1	32	"	"	7	1	"
" 23	Joseph Grievis	ditto	1	20	1	6	10	1	"
June 30	Patrick Reynolds	ditto	2	66	"	"	26	3	"
" 16	William Grey	Dysentery.	3	120	"	"	39	3	"
July 4	Henry Eveling	ditto	1	30	2	28	21	8	"
" 8	Robert Brown	ditto	"	"	1	6	36	2	"
" 21	Thomas Hawkins	ditto	1	32	"	"	5	7	"
" 13	James Tod	ditto	2	64	"	"	13	4	"
" 22	George Egan	ditto	1	32	"	"	4	3	"
" 16	John Adams	ditto	1	32	1	6	30	5	"
" 14	Thomas Paton	ditto	1	48	2	12	9	5	"
" 13	Thomas Johnson	ditto	"	"	"	"	13	"	"

Article VIII.

Annual Report of the Native General Hospital at Bombay, for the year 1839.

Presented by the Medical Board, May 1840.

General Observations. The patients admitted during 1839, exceed those admitted during 1838, by 341. The proportion of casualties, however, is greater, and comes up to $16\frac{9}{8}$ per cent; a lesser amount than in any former year excepting 1838, in which the mortality was only about $14\frac{9}{25}$ per cent. The cause of this, has been in great measure, the necessity which frequently existed, for making periodical clearances of the hospital; when, from the numbers of sick applying for admission, the convalescents and persons who were more slightly unwell have been discharged to give room to severe cases, and in like manner, cases of disease which would have been admitted, had there been room in hospital, have been furnished with medicines and desired to attend as in dispensaries. There has consequently been a greater amount of sick "dangerously ill" in proportion to the total inmates of the hospital than in former years; and it will be seen that the increase in the present, over the past year, is for the most part in diseases of a grave nature—Cholera, Cachexia, Fevers, Inflammations, Dropsical affections, Fractures, Phthisis Pulmonalis, Small Pox, Ulcers and Wounds.

The degree of mortality arises, as has been explained in former reports, from the immense proportion of cases of extreme destitution that are admitted, for whom relief of suffering, but not cure of disease, can be looked for. Exclusive of those, there were twenty-five who died soon after admission, without receiving medical treatment; and whose diseases are believed to have been as follows.

Asthma, one; Cholera, one; Cachexia or Diarrhœa, seven; Dropsical affections, twelve; Dysentery, one; Fevers, twelve; Hepatic affections, three; Cephalic inflammation, one; Thoracic inflammation, one; Abdominal inflammation, two; Phthisis Pulmonalis, one; Small pox, one; Gangrene, two; Tetanus, two. Total, twenty-five.

There were also of Cachexia, eight; Diarrhœa, two; Dysentery,

four; Hepatic affections, three; Cephalic inflammations, two; Thoracic, four; Abdominal, three; Phthisis Pulmonalis, two; Small Pox, two; Tetanus, three. In all, thirty-three cases who died the day after admission.

As a detail of the mode of treating most of the diseases has been forwarded in former reports, I shall merely subjoin a return of the admissions, discharges and deaths for the year, and then make a few remarks on some of the classes.

Annual Return of Sick of the Native General Hospital, from the 1st of January, to the 31st of December, 1839.

Diseases.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Apoplexy	..	2	2	..	2	..
Asthma	..	4	4	4	..	..
Cholera, Biliosa	1	17	18	9	9	..
———, Spasmodica	..	20	20	6	14	..
Cutaneous Diseases	8	108	116	106	3	7
Cachexia	3	72	75	22	53	..
Diarrhœa	..	22	22	11	9	2
Dropsical Affections	2	49	51	23	27	1
Dislocations and Sprains	..	9	9	8	..	1
Delirium Tremens	..	9	9	8	..	1
Dracunculus	1	21	22	18	..	4
Dysentery	6	72	78	39	35	4
Fractures	4	24	28	23	3	2
Fevers — Remittent	1	87	88	68	16	4
Fevers — Intermittent	3	118	121	116	1	4
Gonorrhœa	3	31	34	32	..	2
Hepatic Affections, Acute	..	14	14	6	4	4
———————, Chronic	1	10	11	2	9	..
Inflammations, External	2	58	60	48	6	6
———————, Cephalic	..	3	3	1	2	..
———————, Thoracic	2	49	51	41	9	1
———————, Abdominal	1	16	17	10	7	..
Affections of the urinary organs	..	6	6	6	..	..
Mania	1	3	4	4	..	..
Ophthalmic Affections, Acute	1	2	3	3	..	..
———————————, Chronic	2	21	23	19	1	3
Phthisis Pulmonalis	1	47	48	14	34	..
Rheumatism	14	180	194	172	6	16
Spleen, Disease of	..	7	7	7	..	..
Syphilitic Affections, Primary	6	123	129	113	4	12
———————, Secondary	..	47	47	37	1	9
Small Pox	..	34	34	20	14	..
Scurvy	..	16	16	11	5	..
Ulcers	9	105	114	88	11	15
Wounds	8	213	221	198	7	16
Other diseases	11	161	172	142	24	6
Total	91	1780	1871	1435	316	120

Cutaneous Diseases. The three fatal cases have been from Lepra Græcorum occurring in old Lepers who sunk under the Diarrhœa which so generally winds up this loathsome disease. — Acetate of lead and sulphate of copper in large doses and combined with large

opiates have been the only remedies from which, even temporary benefit has been obtained in those cases.

Dislocations.—Two of shoulder; two of ancle; one of hip; four of wrist.

Delirium Tremens. One Parsee; three Musulmans; one Christian woman; one Portuguese; four Christian men. (Portuguese); All cured by opiates, diffusible stimuli and in some cases the cold affusion. In the case now under treatment, leeches to the head have been found necessary.

	Cured.	Died.
Fractures.—thigh, simple	2	0
—both bones of leg, simple	7	0
—"——"—— comminuted	2	0
—"——"—— compound	2	2
—the Fibula	1	0
—Patella, simple	1	0
—Clavicle, comminuted	1	0
—Humerus, simple	1	0
—Ulna	1	0
—Carpal bones compound and attended by Tetanus	2	0
—Ribs.	2	0
—Lower jaw-bone compound	0	1
	22	3

Of the fatal cases, one was a compound fracture of the leg in an old woman, occasioned by a cart wheel passsing over it immediately above the instep. She was not brought to the hospital till many hours after the accident had occurred, and died eight hours after admission, notwithstanding the assiduous exhibition of diffusible stimuli and opiates &c. Another similar injury from a similar cause in a Brahmin, terminated fatally from tetanus on the twelfth day after admission and the third from the invasion of the disease. The third occurred in an old man who fell from a great height and fractured the lower jaw into numerous pieces, some of which were removed; notwithstanding this, and the occurrence of copious suppuration at several points, perfect union was obtained, and he quitted hospital well; but returned after a time, broken down by dissipation and hard drinking, and ultimately sunk in hospital from fever depen-

dent on extensive suppuration in both ears. Body was not allowed to be opened.

Fevers Intermittent. Ninety four cases of quotidian and twenty-four of the tertian type. Of the former, one fatal in an old man, a free liver who had been often in hospital for the cure of rheumatic and febrile affections complicated with pulmonary disease. A portion of narcotine procured (I believe) from Bengal, had a fair trial in thirteen of those cases, viz. five tertian and eight of the quotidian type and only succeeded in three — one tertian and two quotidian. The remedy was given in an acid solution in ten grain doses at intervals of two hours for four times; in all of these cases, it even, where it succeeeded, produced giddiness, nausea often followed by vomiting and great gastric uneasiness; and difficulty was often experienced in inducing patients to swallow this remedy who took quinine most readily and without complaint. I think, I noticed that even in the three successful cases, anorexia was present to a greater extent, and continued for a longer period than seemed likely to have been the case, had narcotine not been used for their cure; ten grain doses were had recourse to, from smaller having been found quite inefficacious. In three cases I gave the medicine in fifteen grain doses, but in all, the first dose was followed by great uneasiness at stomach and the second was invariably followed by vomiting. Quinine cured all those cases, but in two of them, not till after a long period, and only in large doses (ten grains in each). I may remark that the narcotine was tried by Dr. OShaughnessy's test, and found by it, to be perfect.

Inflammations external.	Cured.	Died.
—Throat	5	,,
—Glands of Neck	5	,,
—"——— of Neck	,,	1
—Hand	1	,,
—Female breast	2	,,
—Glands of Groin	9	,,
—Testis	3	,,
—Scrotum	,,	1
—Buttock	1	1
—Hip joint	,,	1
—Thigh	2	,,
—Knee	10	2
—Leg	5	,,
—Ankle	9	,,
	52	6

Excepting in the case of the inflamed scrotum which speedily terminated by sloughing, all the other fatal cases were from long continued inflammation having ended in suppuration; and were accompanied by hectic and such general derangement of the system as to preclude a hope of cure. Many of the other cases were exceedingly violent and called for full general and frequent topical bleeding and nauseants &c. &c.

Inflammations Abdominal. Excepting one of colonitis which, notwithstanding the most active treatment, proved fatal by mortification supervening thirty six hours after admission; all the other cases six in number, were of gastro-enteritis of which four died within three days after receipt into hospital. All the successful cases were of this form of disease and of great obstinacy.

Phthisis Pulmonalis. The number has been unusually great and ought even to have been greater, as several of the cases borne as Cachexia and Thoracic inflammation ought to have been included under this head.

Ophthalmia chronica and *Rheumatism.* The fatal cases of these diseases occurred in cachectic and broken constitutions. Of the latter disease there have been, acute, sixty-four; chronic, one-hundred and two; syphilitic, fourteen. Total 180.

Small Pox. Cases of this disease occurring in parties unprotected by vaccination of unusually severe form, have been admitted in every month of the past year, excepting in January, February and October. The greatest number of admissions and the smallest mortality occurred in March, when many recently attacked were admitted into hospital; but in the other months the cases received have been of the worst possible description, and always at advanced periods of the disease. A confluent rash, and great affection of the throat and head in most, and a copious but imperfectly developed rash in others, have been the most marked features of all the cases.

Scurvy. Of the fatal cases, two in whom the disease was combined with general dropsy died on the fourth day after admission. A third, an African died suddenly from syncope. The other two were Lascars who had been long ill and sunk from inanition. Both had long suffered from diarrhœa which was readily checked by large doses of plumbi acetas (six grains,) combined with full opiates;

but notwithstanding this, they did not rally nor improve under any modification of diet or regimen.

		Cured	Died.
Ulcers.	Simple	33	0
	Indolent	13	0
	Sloughing	22	6
	Irritable	27	5
		94	11

Of these, two died from sloughing of the labia; one from sloughing of the groin and abdominal parietes; one from sloughing of the hand which he declined to have amputated; and two from superficial sloughing of the leg, in which diarrhœa supervened and carried them off. Of the others, one had extensive ulceration of the parietes of the chest with caries of the ribs; other two broken down by syphilis and drinking had numerous ulcers on the lower extremities; a fourth a phthisical patient had ulceration of the labia and extremities; and a fifth who had extensive disease of the hand, and had declined to have it amputated sunk so low from repeated oozing of blood as to render it unadvisable to perform the operation, when he at last consented to have it done.

Creosote as a local application was extensively used in the cases of sloughing ulcer, and in many with good effect, but it did not quite come up to the expectations which had been formed of its efficacy. It is however most useful in counteracting the disagreeable fætor of many of these sores.

Two amputations of the leg below the knee; one of the great toe; one of the forearm; and two of the fingers on account of ulcers, terminated favourably. In one case the hand sloughed off at the wrist and the man left hospital with a well covered stump, the result of careful dressing unaided by the knife.

		Cured	Died.
Wounds.	Injuries of the head	2	2
	Penetrating wound of abdomen	0	1
	Penetrating wound of thorax and abdomen with numerous incised wounds of head, body and limbs	1	0
	Punctured wounds	6	1
	Gun shot wounds	2	0
	Incised wounds	28	0

Lacerated wounds by blows from clubs, bottles and stones &c.	28	1
Lacerated wounds combined with fractured jaw.	2	0
By buggy and cart wheels	26	0
By falls from heights	8	0
Parties knocked down and run over by buggies, horses &c. &c.	26	1
Beaten by clubs &c.	55	1
Falls from heights	14	0
From articles falling on them	8	0
	206	7

Both fatal cases of injuries of the head were from fractured skull attended by laceration of the brain and hœmorrhage; both were caused by the parties being knocked down by horses going at speed, and both died soon after admission into hospital. The two cures were likewise cases of fractured skull. One of those, in addition, had her nose and a great portion of the upper lip removed, and an extensive incised wound on the forehead; from these she was long in extreme danger but ultimately left hospital quite well.

Penetrating wound of Abdomen believed to have been a case of suicide. A transverse wound of the epigastric and right hypochondriac regions six inches in length had been made, through which the omentum and whole arch of the colon had been dragged, and the latter viscus completely cut across in two places with an interval of about eight inches between, and the severed portion irregularly cut in two parts through both sides of the canal. Omentum much lacerated and torn. Abdominal extremities of the severed gut could not be found—in this state the man lived thirty hours and was perfectly sensible to the last.

The penetrating wounds of the thorax and abdomen occurred in the wife of the suicide just spoken of, and were inflicted by him. Both blood and air escaped from the wounds of the chest, and a portion of the omentum (which was removed) had escaped from the abdomen; in addition she had a long deep wound at the angle of the jaw, her mouth laid open by another of the cheek, and eight other deep flesh wounds of the trunk and extremities; and yet, has never had after the first thirty six hours an unfavourable symptom and has

merely required the exhibition of anodynes, antimonials, and laxatives.

The fatal punctured wound was from the horn of a deer above the the pubes; it did not penetrate the parietes of the abdomen but was attended by high febrile excitement, for which, repeated general and local blood-letting, antimonials and purgatives, &c. were used with excellent effect. After the lapse of six days, considerable pain was felt in the upper part of the thigh where an incision was made, and issue given to a quantity of bloody sanies with sloughs and air, &c. Much relief experienced in consequence, but though the discharge soon ceased, he did not recover either spirits or strength, and ultimately sunk under diarrhœa and low typhoid symptoms, &c. the 22d day after admission. Body removed by his friends.

The fatal lacerated wound occurred in a labourer of the Mint, who died suddenly from disease of the heart.

One fatal case of contusion occurred in a very old man, who was thrown down by a buggy and who died on the fifth day, from no marked complaint, but apparently as much from old age as from any other cause.

The other fatal case arose from rupture of the spleen in a young man who had been beaten about the abdomen by thieves with their fists. In this case the spleen was of large size, of soft and very fragile texture.

Many of the incised, and lacerated wounds were very extensive and severe, but they and all the others did well, and require no particular notice.

		Cured.	Died.
Other Diseases.	Abscess.	11	3
	Gangrene	3	2
	Injury of the spine.	0	1
	Infirmity from old age.	7	8
	Palsy	14	2
	Poisoning	17	1
	Ptyalism from mercury.	12	2
	Tetanus	3	5
	Burns and scalds.	6	0
	Colica.	6	0
	Constipation.	8	0
	Contracted joints	4	0
	Debility	9	0
	Drunkeness	10	0
	Hæmorrhoids	10	0

Hernia Inguinalis	3	0
Intestinal worms	6	0
Rachitis	1	0
Rubeola	3	0
Scrofula	4	0
	137	24

The cases of abscess ought to have been borne among external inflammations. They were for the most part extensive and situated about the neck, axilla, buttocks, and thighs. The fatal cases occurred in men completely broken down by disease and long suffering and but little could be done for them, beyond supporting their strength, and administering anodynes. Of these, one was a case of abscess of the neck, and two were of the buttocks.

Gangrene. One case, of right lower extremity from guinea worm proved fatal on the second day, another of the right upper extremity from the same cause on the fourth day.

Injury of the Spine. A case of fracture and displacement of the lumbar vertebræ in a Seedee, caused by a large bale of cotton falling on him when in the sitting posture and pressing him down on his forehead to the deck. Instant paralysis of the bladder and lower extremities occurred, and he sunk within nine weeks from the accident. At first, he had little or no pain any where, but always expressed himself easier after the application of leeches and cold &c., to the injury. At the end of the seventh week he became delirious and complained much of pain in his loins, this was often relieved by leeching and cold, but the delirium was always present to a greater or less extent, and he died complaining of his lower extremities being severed from his body. Inspection not permitted by his friends.

Paralysis. Cured or relieved, hemiplegia ten; paraplegia four. Nux vomica and strychnine have been found as efficacious as in the cases of 1838, detailed in last annual report. One fatal case of hemiplegia died soon after admission into hospital. The other occurred in a man of dissipated habits, a drunkard, and opium and ghanja eater. At the time of admission in addition to the paralytic symptoms, he was affected with delirium tremens; this was removed by

anodynes, antimonials and purgatives, and he afterwards took nux vomica for a very long period, in doses gradually increased to as great an extent as could be borne; but, it was often intermitted on account of the excitement produced and the degree of muscular pain and twitching that it invariably, after a time, caused; and was ultimately, abandoned in consequence of its failing to produce any permanent good effect on the loss of power in the limb. He soon after gradually declined in flesh and strength, notwithstanding, the administration of diffusible stimuli and tonics and died of debility induced by utter loss of appetite.

Poisoning. The fatal case occurred half an hour after admission into hospital, and by account seven hours after taking the poison. About a scruple of white oxide of arsenic was removed by the stomach pump. The others were cases of the administration of *datura*, &c., but they and those of drunkenness require no further notice.

Ptyalism from mercury. All admitted from the bazar. The fatal cases occurred from extensive sloughing of the face. One on the second and the other on the sixth day after admission.

Tetanus. Besides the three cases already spoken of, another proved fatal on the third day after admission; in this case there was extensive sloughing of the foot from dracunculus. The fifth, a case of twelve days standing, caused by a lacerated wound of the foot, proved fatal on the seventh day after admission. In these cases, as well as in those which have been cured, blisters to the spine, purgatives and calomel and opium in large and repeated doses have been the means employed. The three cures were cases of traumatic tetanus, and in all, salivation was produced, after which the symptoms gradually yielded. A case of severe opisthotonos from guinea worm, which had appeared at three different parts in the soles of the feet, and legs, is now under cure. The patient was admitted on the 4th December, fifteen days after the first appearance of the tetanic symptoms and in a state which seemed to preclude the possibility of his living many hours. A strong cathartic was given on admission followed immediately afterwards by a five minim dose of hydrocyanic acid combined with tinct: opii: ʒii. This seemed to give relief and was soon repeated in an increased dose, and he at length took ten minims of the acid with ʒii of tinct: opii: four times a day with occasional purgatives, with the most marked benefit. He can now 1st January

walk a little, has no rigidity of limbs, and only feels very weak. The acid has been intermitted, and he now only takes half a drachm of tinct: opii : twice daily.

Burns and scalds. One of the latter and five of the former all from gunpowder or the actual contact of fire. In the scald the application of cotton was of use. The other cases require no notice.

In one of those of intestinal worms, 122 lumbrici, of lengths varying from four to six inches, were passed at once in a mass by stool. About 180 were passed by this individual at different times.

NUMBER OF SICK.

Remained 31st December 1838	91
Admitted in 1839	1780
Discharged	1435
Died in Hospital	316
Remained 31st December 1839	120
Average daily number of sick for the year	119½
Average number of convalescents	none
Died without receiving medical treatment	25

Article IX.

Annual Report of the Diseases in the Jail and Detachment Hospitals at Rutnagherry in the Southern Concan, from the 1st January, to the 31st December, 1839. By John Bourchier, M. D.

Presented by the Medical Board, May 1840.

It is unnecessary to preface this report by a repetition of what has been already told regarding the climate and topography of Rutnagherry by my predecessor and myself — very full information having been given on these points. It will be sufficient to notice any peculiarities which may have distinguished the season of the year just concluded; and what chiefly claims attention, in a medical point of view, is its unusually heavy moonsoon which, also, commenced much earlier than usual, by a heavy fall of rain on the 18th of May. The following register of the pluviometer for the years 1838 and 1839, sufficiently shows the comparatively large quantity of rain which fell in the latter.

Months.	1838.		1839.	
	Inches.	Cents.	Inches.	Cents.
May	0	0	15	04
June	32	87	33	54
July	6	39	33	08
August	11	49	11	51
September .	5	44	4	23
Total	56	19	97	40

The distinguishing characteristic of the climate of this station is its comparative coolness during the hot months; and the temperature, low as it is, as indicated by the thermometer, is rendered still more agreeable to the feelings by a regular constant sea-breeze. But the mean temperature of the three months of March, April, and May, which in 1838 was only 79° 64′ was for the same period in 1839, 84° 38′.

The total number of deaths during the year has been in the Jail, ten; in the Detachment hospital, none. The former were as follows; Gunshot wounds, two; Scurvy, three; Remittent Fever, one; Diarrhœa, two; Anasarca, one; Cachexia, one; Total ten.

The total of admissions into the Jail hospital has been five hundred and fifty-three, the average numbers of each month, being forty-six, while the average number of prisoners has been 349.5, giving a proportion of thirteen per cent sick, and of deaths at the rate of 2.8 per cent on the whole number of prisoners in the Jail.

It should be borne in mind that there is a tendency on the part of the prisoners to seek admission into the hospital for trifling or for feigned ailments, in the hope of obtaining some indulgence in diet, or some relaxation of the prison discipline. This of course swells the apparent number of sick, as a short period of observation is sometimes necessary to detect the imposture. Trifling injuries, from the fetters also bring a great many to the hospital.

The average strength of the detachment of regular troops has been one hundred and sixty-nine; the proportion of sick among them nearly four per cent; no death.

Besides the regular troops, the sick of the Rutnagherry Rangers, and of the Civil establishment, and occasionally patients from the town and neighbourhood, are admitted into the Detachment, or as it is more properly called, the Civil and Military hospital. Forty-one cases of the Rangers have been admitted during the year; none has ended fatally.

At the beginning of April, the number of prisoners was suddenly increased by the capture of a gang of insurgents at Malwan, one hundred and four in number; of whom twenty-three were wounded — some of them very severely and affording an unusual opportunity for surgical practice. Three cases of compound fracture, in the immediate neighbourhood of large joints, called for speedy amputation, and in two, the operation was successfully performed, by the removal of an arm in each case. The third was a compound fracture of the femur, by a musket shot, just above the condyles. Every argument, and at various intervals, was employed to induce the subject of this injury to submit to amputation as his only chance for life, but he obstinately refused, and died, after some months, exhausted by hectic fever and profuse suppuration. The other fatal wound was a remarkable one, a man was shot in the back near the angle of the ribs, the ball taking an oblique direction towards the spine; it could not be extracted, and he died, reduced to a skeleton, after being three months in hospital. From the curvature of the spine which took place to a great extent

before death, it became evident that there was a loss of substance in the body of one or more of the vertebræ, and accordingly, on dissection, the ball was found to have passed through this part of the bony column, and was discovered lying behind the right kidney, much flattened and indented. The bodies of the two lower dorsal, and of the two upper lumbar vertebræ were almost entirely removed by the passage of the ball, and by subsequent caries and absorption. The escape of the aorta, and the spinal cord and its coverings in such an injury, was a singular feature of this case.

Among other serious wounds, was one of the throat, of great extent, between the os hyoides and the thyroid cartilage, which was inflicted by one of the gang, in an attempt to commit suicide with his own sword. Fifteen days having elapsed before the man was brought here, luxuriant granulations had sprung up, which, as the edges of the wound had not been kept in proper contact, made it a troublesome case to deal with. By the employment of two or three stitches, position, and bandaging, the man made a favourable but tedious recovery.

The same accession of numbers which gave me the above cases, led to results of much importance, for the desperate character of the Malwan prisoners obliged the officer in charge of the Jail, to enforce a very rigid system of confinement for the whole, of which the effects were eventually seen in that dreaded disease the scurvy. The principal sufferers were the new-comers as might be expected, for many causes co-operated to render them peculiarly obnoxious to the disease — close confinement, the sudden privation of the various stimulants to which most of them were accustomed, and the depressing passion, inseparable from the failure of their enterprise, and the dread of punishment, rendered it not at all surprising that scurvy should attack them. The first of these causes operated equally on all the previous inmates of the Jail, who in consequence of the arrival of the Malwan prisoners, were subjected to closer confinement than usual.

The following table exhibits the number of prisoners admitted with scurvy in each of the twelve months, with the total for the year. It should be stated that the gang from Malwan arrived in the beginning of April, and were nearly all removed under sentence of transportation early in October.

January.	February.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
2	4	2	2	0	1	2	40	13	2	0	1

Total number of cases admitted during the year — 69.

I will now proceed to notice the most prominent symptoms of the scurvy, as it has appeared here, and to describe the mode of treatment I have adopted.

The disease generally made its attack by a swollen and spongy state of the gums, which were more or less of a livid colour, and bled readily on being irritated; in many instances they extended in triangular processes between the teeth, or projected over them; the tongue sometimes, but not invariably, had an excoriated or fissured appearance near the tip; in seven cases, the mucous membrane of the cheek presented a similar appearance. The breath was generally fetid, and the face more or less puffed and swollen. The affection of the mouth was attended by various degrees of pain and swelling of the lower extremities, most frequeutly of the hams, in which hard tumors formed.

When the scorbutic diathesis was established, the mere pressure of the irons was apt to produce swelling and inflammation. In one or two cases, very acute pain was felt in the muscular parietes of the chest, unattended with swelling. Lind calls this "a dangerous symptom." It was observable that the greatest swelling was by no means attended with the greatest pain, the legs and ankles being often affected with an enlargement of a stony hardness, scarcely at all painful, and chiefly inconvenient by preventing the play of the muscles and action of the joints; whereas in a few cases the patients suffered most acutely from the slightest pressure on the lower extremities when scarcely at all swollen. In such, the parts had more of a shining appearance, and were much less rigid. The affection of the mouth usually appeared first, but sometimes the scorbutic swellings of the limbs preceded it. The constitutional disturbance was not very considerable in the generality of cases, but lassitude and depression of spirits in various degrees, accompanied the local symptoms, and the countenance exhibited a degree of dejection more or less marked.

In a paper * on this subject, which I had the honor of forwarding to

* Vide Appendix.

the Medical Board some months ago, I embodied all the statistical information, I could collect, regarding the disease as it has from time to time appeared in this jail, and it would therefore be superfluous in this place to repeat what I then stated, with respect to its causes and the mode of prevention which has been successfully adopted after a careful investigation of the subject.

I now therefore pass to the mode of treatment which I have employed with much success and which consists in the exhibition of tonics and cordials, including the bark in decoction and in powder, and particularly quinine, which I regard as a most valuable remedy in this disease. Vegetable acids, as limes and tamarinds, were very freely employed, in combination with "*goor*," or coarse sugar, in itself an excellent antiscorbutic. The local applications which were of most service, were washes and gargles of alum and decoction of bark, and the solution of chloride of lime, hot fomentations and friction (when the case admitted of it) with camphor liniment, or turpentine and oil, to the swellings on the limbs, and opiate plasters when the severe pain would admit of nothing else. With these measures, a more liberal diet than usual was allowed, and the general result was highly satisfactory.

Of the sixty-nine cases, three terminated fatally, two of them being old and debilitated subjects — the third was a robust man, who seemed improving, when he was suddenly attacked with extreme oppression at the chest, and died in a few hours in spite of every thing that could be done. Æther, camphor and opium, with a blister to the chest, gave temporary relief, but he died, after great suffering, with apparent symptoms of effusion on the chest. I was not allowed to examine the body, which I was anxious to do, to ascertain whether effusion had really taken place, as I believe scorbutic patients have been found to die in this manner, where no fluid has been found in the cavity of the thorax.

Before quitting this subject, I am desirous of retracting the favourable opinion I was induced to give last year, from a limited experience, regarding the employment of the nitrate of potash as a remedy in land scurvy. Trusting too much to the confident reports of the several zealous officers who had tried it at sea, I was led to give too much credit to its effect, in the only case in which I had an opportunity of employing it. From more extended trials during the past year, in which the dose of this substance was carried to ʒj, given six times daily, without any mitigation of the symptoms, I have no hesitation in saying that it is powerless as a remedy in the disease under consideration. Disappointed in my expectation of benefit from its use, I

changed the mode of treatment to that which I have already described, and had every reason to be satisfied with the result.

Two others of the deaths took place on the day the patients were admitted into the hospital — one of them, indeed, a very few minutes afterwards. In both, disease appeared to have been concealed or neglected — one of them was a cachectic subject; another had laboured under fever, and died from sudden and extreme congestion of the brain and its membranes. In the former case there was no opportunity for practice — in the latter, a large number of leeches and a cold lotion were applied to the shaved scalp, and a blister between the shoulders. Active purgatives and enemata were likewise employed, but the man became comatose, and died in the evening.

The two fatal cases of diarrhœa took place in old and worn out subjects who gradually sank under the disease. The remaining fatal case under the head of anasarca, was that of a man who had long laboured under extensive chronic disease of the chest and abdomen.

During the first three months of the year, eight or nine cases of cynanche parotidea occurred, which I notice rather for the singularity of the circumstance than for any importance attached to the disease, which readily yielded to mild remedies. I believe it to have been propagated by contagion, and no sympathetic affection of the testes was in any case observed.

Dysenteric cases were, as usual, numerous, but not generally severe, and none fatal. Moderate purging with ol: ricini, and the intermediate exhibition of ipecacuanha in free doses, combined with pilul: hydrargyri, or the hydrarg: *c.* creta, and opium, was found a successful practice in most cases. Occasionally a combination of calomel, opium and antimonial powder was useful, but not pushed to salivation. In the worst cases, great benefit was derived from the application of leeches circa anum, and the use of an injection of small bulk, containing forty or fifty minims of tinct: opii: and eight or ten grains of plumb: acetas. This never failed to relieve the straining and tenesmus.

Cutaneous diseases were more frequent than usual, notwithstanding care to prevent them by enforcing cleanliness. One inveterate case of vesicular itch, incurable by the ordinary means, yielded to a solution of the bi-chloride of mercury, in the proportion of ʒi. to a pint of water, without any unpleasant effects being occasioned by the remedy.

It only remains to notice the admissions under the head of fever, remittent and intermittent, but it is not my intention to repeat the

detail I inserted in my last year's report of the mode of treatment adopted for each. Of intermittent fever 46 cases have been admitted, and I observe that 49 was the number in the preceding twelve months.

On the whole, taking into consideration the circumstances I have related, I think myself warranted in saying that the Jail has been tolerably healthy during the past year and the mortality inconsiderable. Very lately a material reduction has been made in the allowance of food to the prisoners, and a very strict privation of all luxuries has been ordered by the Judges of the Sudr. Adawlut. But the present allowance is still considered sufficient, with the advantages of clubbing their rations; and a discretionary power, under strict limitations, is granted to the Civil Surgeon to direct any such increase or addition to the diet of a prisoner, as his state of health may render necessary. The following is the quantity of food allowed to each prisoner, under the late regulations.

"Scale of diet for every full-grown person daily

	Avoirdupois.	
	lb.	oz.
Of beaten rice (coarse) or of bajree, jowaree or wheat flour.	1	2
Of dhall of any kind	0	6

Stimulating condiments to the value of one pie per man.

Increased allowance in cases where it may be necessary.

	Avoirdupois.	
	lb.	oz.
Of grain, as above.	1	8
Dhall	0	8

And condiments to the value of three pies."

Medical aid has been afforded during the year to numerous applicants from the town and neighbourhood.

In the Detachment Hospital not much of interest has occurred, with the exception of the following case.

Pleuritis in which the operation of paracentesis thoracis was performed.

Juggun Naikloo, aged about twenty-five, of a spare habit and sickly constitution, Private, 18th Regt. M. N. I. came to Hospital on the 22d July, 1839, complaining of inability to do his duty, and of a pain in the left shoulder, with hurried and difficult respiration, much aggravated by exertion. These complaints had existed ten days before he presented himself, and his account of his previous symptoms is embarrassed and obscure. He says he has had no pain of the chest or side, no fever; and only very slight cough.

while in the lines. On examing the thorax, the natural resonance is found to be entirely lost over the whole of the left side, and a still more remarkable phenomenon presents itself in the displacement of the heart, which is felt and seen strongly pulsating on the right side of the chest. The spot in which the impulse is most forcible and distinct, both to the touch, and to the eye, is immediately below the cartilage of the second rib on the right side, in which situation it is as great as that afforded by the apex of the organ in its natural position. The pulsation is moreover generally felt over the whole of the right side of the chest, and completely wanting on the left, which is visibly enlarged in the situation of the intercostal spaces, and affords on percussion an obscure sense of fluctuation. The natural hollow below the clavicle on that side is entirely lost, and compared with the opposite one, there is a general fulness in the part. The epigastric region is tense and swollen from pressure on the diaphragm, and the liver is forced low into the right iliac region. The pain in the shoulder attracts more of the patient's attention than any thing else, and he is urgent to have it relieved. The pulse is one hundred and twenty and feeble; skin cool; tongue white. He has slight tickling cough, but breathes with tolerable ease when in a state of repose, and it is particularly observable that he can lie with equal case on either side.

A brisk purgative was ordered and two blisters applied in succession over the affected side of the thorax, the latter of which was kept open for some days with relief to the cough, which was entirely removed. Calomel and tartarized antimony were employed in repeated doses, till the gums became tender, when it was omitted. A diuretic and tonic mixture with infus: calumbœ and spir: æther: nitric: was then prescribed and the purgative repeated at the interval of a few days.

The fulness of the epigastrium remained undiminished, the tongue became clean, the appetite was tolerably good, and what is rather remarkable, he slept well. He still complained chiefly of the pain in his shoulder, and considered it his principal ailment. The following was then ordered.

℞. Tinct: Digitalis ʒi. Spir: æther Nitric ʒii. Liq Ammon Acetat: ℥ii. mistur. Camphor ℥iv. m a fourth part three times a day.

2d August. The pulse is now reduced to 96, soft and regular, but the pain in the shoulder much harasses the patient, and prevents his sleeping; the belly is soft and less tumid, bowels open; tongue clean. To satisfy him, an anodyne liniment was ordered for the shoulder, and the diuretic mixture continued. A seton to be put in the left side of the chest.

3d. Not so well this morning, pulse 96 and very feeble, and the skin rather below the natural standard of heat; the belly is very tense, and the left side of the chest presents an increased appearance of fulness in every part.

℞. Acet. scill. ʒi. tinct. digitalis m. xx. Spir. æther. nitric. ʒss. infus. calumbœ ℥iss. M.ft. haust To be given three times a day.

Extract. Hyoscyam. grs. viii. Pulv. Antim. comp. grs. iv. ft. pil. ii. To be taken at bed time.

4th August. Got some refreshing sleep and feels rather better; no further change in the symptoms.

Continue the treatment.

Vespere. The dyspnœa has become extremely urgent; the greatest distress is occasioned by the pressure on the abdominal viscera, and the tension and swelling of the belly are increased: the feet and the integuments of the left side of the thorax are œdematous, pitting deeply on pressure.

Repeat the pills at bed time.

August 5th. I found the patient much worse this morning; the œdema increased; the dyspnœa so great as to threaten suffocation; the pulse small and frequent; the surface colder than natural. Under these circumstances, and being well assured from the symptoms of the existence of an extensive effusion on the left side of the chest, I proceeded to perform the operation of paracentesis of the thorax. An incision was made between the 6th and 7th ribs, and close to the upper margin of the latter at a point somewhat anterior to the digitation of the serratus magnus muscle; this gave outlet to upwards of eight pounds of a straw-coloured fluid, which on cooling, formed a buff-coloured coagulum of extreme toughness and density, from which scarcely any serum separated. After the operation, which was followed by immediate relief, the pulse fell to ninety-two. A saline effervescing draught was then given, with Tinct: Hyoscyam: ℥i. and liquor ammon: acetat: ℥ss.—

Two P. M. Pulse was one hundred and eight, weak and small—there is tendency to cough on speaking, but no fever; bowels open scantily.

Vespere. He is sitting up, and says he is better, tongue clean and moist, but there is morbid heat and dryness of the surface with a sense of chilliness. Pulse upwards of one hundred; bowels not again moved. I found he has imprudently eaten meat to-day.

℞. Soda Tart. ʒi. Vin. Ant. Tart. ℥i. Liq. Ammon. Acetat ʒiss. Tinct. Digitalis ℥i. Mist. Salinæ ʒiv. m. a fourth part every four hours.

August 6th. Pulse and skin as at last report; he slept but little from pain in the wound; he has no cough; the bowels were thrice moved during the night; tongue moist and yellowish in the centre. The œdema of the feet has nearly disappeared, that of the chest entirely so. The swelling and tension of the epigastrium and right side no longer exist—the abdomen is soft and elastic. The heart is still felt and seen strongly beating between the cartilages of the second and third ribs on the right side; the resonance of the left side of the chest is completely restored and it is now more resonant than the other.

℞. Hydrarg. Chlorid. grs. ix. Antim. Pot. Tart. grs. iii. divide in three powders. One to be given three times a day.

August 7th. Was purged five times yesterday, and as often last night—the stools being amazingly copious, fluid, with a small admixture of frothy feculence, which floats above the serous discharge: the swelling of the feet is quite gone. The medicine occasioned no nausea, and he does not appear exhausted by the the profuse discharge from the bowels: pulse ninety-six, small and soft, no cough nor heat of skin.

Continue the powder.

Vespere. Only one stool since morning, more feculent. Slight heat of skin at present, pulse 120, tongue moist. Complains of a good deal of pain in the wound, from which there is as light oozing tinged with blood.

Apply a poultice over the wound.

August 8th. Three stools last night, yellow and feculent. He slept tolerably, and feels better this morning; skin of natural warmth and moist, which it has not hitherto been; pulse one hundred and four. The wound is suppurating gums slightly tender.

Omit the powders.

Vespere. Some heat and dryness of skin.

℞. Magnes. Sulph. ℥iss. Vin. Ant. Potassio. Tart. m. xx. Mist. Salinæ ℥iss. m. ft. haust. To be taken every four hours.

August 9th. Passed an uneasy night, with pain in the left side of the chest and shoulders, was chilly and restless, and has now febrile heat of skin, with a pulse at 120, and very feeble; thirst, urine high-coloured, bowels twice moved; the respiration is frequent, incomplete and abdominal, the respiratory murmur cannot be heard on the left side and is indistinct on the other.

Ten leeches to the left side of the chest. Continue the draught.

2. P. M. Feels relieved by the leeches, and has been dozing, the skin is cooler and moister; respiration twenty-six in a minute, one stool since morning, pultaceous, copious, and of a green colour.

℞. Potass. Nitrat. grs. x. Tinct. Digitalis: Sp. Æther. nitric. aa. m. xx. Aq. Fontan. ℥iss m. ft. haust. To be taken every four or five hours.

Vespere. Has had slight hæmoptysis; in other respects as before.

Continue.

10th. Did not sleep well last night; but is much less feverish this morning; the skin being of natural temperature, pulse still one hundred and twenty, soft and small; bowels moved three times during the night, tongue moist and yellow in the centre, thirst, no cough.

℞. Potass. Nitrat. ℥i. Spir. Æther nitric ℥ii. Mellis ℥iss. Aquæ oiss. m. ft. Let him take this occasionally as common drink.

Continue the medicine.

Vespere. Skin now warm and dry, he complains of a good deal of pain in the situation of the wound.

With the draught at bed-time, let him have Tinct Hyoscyami ℥i.

August 11th. Passed a restless night, was four times purged and says he felt very hot; the skin is now perfectly cool; pulse ninety six feeble; respiration hurried and incomplete; inability to dilate the chest.

Let the chest be vesicated on the left side, with the liquor lyttæ.

Continue the medicine.

Vespere. The blister rose well and is discharging, no heat of skin all day, and not much thirst, bowels open.

Extract. Hyoscyam. grs. viii. Pulv. Antim. comp. grs. iii. in two pills at bed time.

August 12th. Got some hours of refreshing sleep and feels better, perspired moderately; the bowels were open three times during the night; pulse one hundred and eight; breathing easier; the gums are still rather tender.

A saline effervescing draught to be given every five hours, with Tinct. Digitalis and Vin. Ipecacuan. aa. m. xx.

Repeat the pills at bed time.

August 13th. Got some comfortable sleep, and feels better this morning; respiration more tranquil; pulse one hundred and twelve.

Continue all the medicines as yesterday.

Vespere. Skin of natural warmth, pulse one hundred and eight, tongue clean and moist; the countenance has much less expression of suffering and anxiety than hitherto.

August 14th. Slept well; no fever; pulse one hundred.

Continue.

August 15th. Going on favorably; pulse ninety-six and firmer; bowels open; the pulsation of the heart is observable in the same situation as before, — there is a degree of bulging of the ribs at the lower part of the thorax on the affected side.

Continue.

August 18th. No material change in the symptoms since last report. Some air is now said to have passed by the wound, which has appeared closed, on coughing last night; the granulations are small indolent and higher than the surrounding skin.

Vespere. About a pint of turbid serum has trickled from a minute orifice in the centre of the wound, during the day; coughing promoted the flow, and there is now a tendency to tickling cough on speaking, no pain or fever, pulse eighty-eight.

Tinct. Muriat. Morph. Vini. Antim. Potass. Tartrat aa m. xxv. Mistur. Camphor. ʒx. at bed time.

August 19th. Slept well, and makes no complaint this morning: a probe easily passes into the interior of the chest; no further evacuation of fluid has taken place during the night, he has occasional dry cough.

R. Pulv. Ipecauan.; Pulv. Digitalis aa grs. vi. Extr. Hyoscyam. ʒss. m. Divide into four pills. One to be taken every four hours.

Vespere. About three or four more ounces of yellow and rather opaque serum have been discharged to-day from the chest, and it now trickles away on

coughing. Skin quite cool; pulse eighty-four soft and weak; appetite good; he is becoming emaciated.

August 20th. Slight oozing from the wound during the night, bowels thrice moved, but he slept tolerably; pulse eighty-four; no heat of skin.

Continue the pills.

Vespere. Three or four ounces of a dirty-yellow fluid have exuded within the last hour, the pulsation of the heart contiunes in the same situation as before, but is much less forcible.

Blister to be repeated to the left side of the chest.

August 21st. Discharge from the chest continues; pulse eighty-eight.

℞. Hydrarg. Chlorid. gr. i. Pulv. Scillæ grs. iii. Pulv. Digitalis gr. iss. Cons. q. s. ft. pil. To be given three times a day.

August 22nd. Increased flow of urine since yesterday, no further discharge from the chest, he slept well.

Continue the pills.

August 26th. No further dischage from the wound occurred till this date, when about three ounces of a sero-purulent fluid slowly trickled from it, by a very minute fistulous orifice. Being collected and allowed to stand, it let fall a quantity of flaky lymph. The gums being slightly tender on the 24th the pills were then omitted, the blister is healed.

Repeat the blister.

Let him take at bed-time Extract Opii. gr. i. Pulv. Antim. compos. grs. iv. m.

August 27th. The blistered surface discharging fully, pulse eighty-four; skin cool and moist; little or no cough.

℞. Infus Cinchonæ ℥iss. Acid Sulph. Aromat. m. xx. three times a day.

It would be tedious to follow up minutely the daily details of the case which necessarily involve much repetition. Its further progress shall therefore be given in the narrative form.

As long as the blister remained open, the discharge was much diminished, but returned in greater quantity on its healing; it was of a dirty greenish-yellow colour, and deposited pus on standing. On the 2nd September a seton was introduced in the affected side of the chest. On the 3rd (probably from some exposure or imprudence) he was attacked with a severe dysenteric complaint, which much reduced him in flesh and strength, and brought him into considerable danger. By the 12th, however, he was much recovered. I omit the details of the treatment as occupying too much space, and not being essential to the main history. It was now observed that the flow from the chest, which was completely established, only took place when the patient was in a sitting or erect posture, always ceasing when he was recumbent. Each expiration occasioned a slight gush from the part, and the discharge gradually became more

purulent; the daily quantity being about two ounces. Various light tonics with a mineral acid, were exhibited, after the cessation of the bowel complaint; and matters remained in this state till the 1st October, about which time, there was some tendency to hectic exacerbation in the evening. The tonic medicines were omitted, and a mixture substituted, with digitalis and hydrocyanic acid, from which he derived benefit. The discharge was now entirely purulent.

When he had been three months in Hospital, he had regained some degree of strength, but was occasionally affected with a sense of chilliness in the evening, with hectic frequency of pulse, which was 100 in the morning, and 120 at the evening visits, attended with heat and dryness of skin. He generally slept well and made but little complaint, but had occasional dry cough; the tongue was always clean and moist.

By the 1st December, upwards of four months from the date of admission, the pulsations of the heart had become much less forcible on the right side of the chest, and were discernible beneath the sternum, but this organ, never entirely, resumed its normal position. It appears probable, that adhesions had formed at an early period of the disease, which prevented its doing so, and that these had gradually become elongated, after the evacuation of the fluid. On the 4th December, the detachment to which the patient belonged, was relieved, and he left the Hospital to rejoin his regiment at Belgaum.

The success of the operation in the above case, can only be said to have been partial, as it is to be feared, the patient may be left with the inconvenience of a permanent fistulous orifice in the parietes of the chest, and a chronic purulent discharge from the cavity of the pleura. Should this be the case, it must be attributed to the lung having been so far condensed by excessive pressure, as to prevent its again expanding, sufficiently, to occupy the space left by the removal of the fluid. Various such instances are on record, of which, I believe, one of the most remarkable occurred in the person of a foreign physician, now living, who underwent the operation for empyema; and who, thirteen years afterwards, published his own case; at which time, pus continued to be daily evacuated from a fistulous orifice in the walls of the chest. This circumstance did not prevent him, from following his profession, and otherwise actively exerting himself. It remains, for time to show, whether the subject of the present case, will eventually escape this inconvenience, by the gradual cessation of the discharge, which is at least very possible.

In the foregoing example, the displacement of the heart was the least equivocal of the diagnostic symptoms, and the French writers have noticed several similar cases, in which, it was equally remarkable. In one, recorded by Pelletan, the pulsations were observed in nearly the same situation, as in this instance. A very interesting case, in which he was himself the operator, is related at considerable length, by Baron Larrey in his Memoires de Chirurgie Militaire;

Tom. 3. In this example, the return of the pulsation of the heart to its natural situation, was also, extremely slow and gradual. Fifteen days after the operation, no appreciable change in this respect had taken place; but after a period which is not specified, we are informed that "le cœur revenait graduellement vers son domicile ordinaire, en sorte que ses pulsations se faisaient journellement sentis plus pres du sternum."

Article X.

*Medical History of H. M. 2d or Queen's Royal Regiment, from the 1st of April 1838, to the 31st of March 1839.** By R. H. Hunter, Esq.

Presented October, 1839.

Station.— During the first six months, Belgaum. Average strength of the regiment, during that period, 692.—Average age, about 32.—Average number of years in India, about 13. Total Admissions during the six months, 485. —Deaths, 7.—Invalids, 23.

Weather. — There was a smart shower at Belgaum on the 1st of April, and again, in the vicinity, on the 4th. From that to the 20th, the weather was dry and warm; then, frequent thunder storms towards evening, with heavy showers, particularly in the night, to the 27th; then, dry and close. Thermometer's highest diurnal range, 85° to 94°. Lowest at 7 a. m., 70° to 76°.

May. Again, thunder storms on the 1st and 2d of May. From that to the 20th, dry and hot during the day, but, mornings and evenings cool. After the 20th, frequent thunder storms, with neavy rains particularly in the night. In the intervals, sultry. Thermometer's highest diurnal range, 80° to 94°. Lowest at 5 a. m. 72° to 76°.

June. The first few days of June, were warm and cloudy. Thermometer's maximum, 89°. On the 5th, thunder, lightning and heavy rains. From that to the 10th, showery. The rains then set in, and the thermometer fell to maximum, 76°, about which, as the average, it continued the rest of the month. From the 10th to the 23d, the last about new moon, was very wet; then, light showers and cloudy, but no day without rain. Thermometer's highest diurnal range, 73° to 89°. Lowest at 7 a. m, 71° to 76°.

* Continued from Vol. ii.

July. Was generally cloudy, occasionally with light, sometimes with heavy showers; but only twice did more than thirty cents fall in the twenty-four hours. Indeed, this month was particularly fine and pleasant; in all, under $3\frac{1}{2}$ inches of rain. Thermometer's highest diurnal range, 72° to 78°. Lowest at 7 A. M., 70° to 72°.

August. Was alternately cold, wet and boisterous; and milder, with light showers, but generally raw and chilly. In all $3\frac{1}{2}$ inches of rain fell. Thermometer's highest diurnal range, 72° to 77°. Lowest at 7 A. M. 69° to 71°.

September. Up to the 14th was cloudy; occasionally; with light showers; then, thunder storms daily, with heavy rains towards evening, till the 27th, when the weather cleared up. Wind during the last few days of this month, generally, from the N. E. in the morning; but, close, hot and sultry in the afternoon. Total rain in September, about 5 inches. Thermometer's highest diurnal range, 74° to 78°, except the last two days, 81° and 82°. Lowest at 7 A. M. 69° to 72°, except the last 5 days, 73° to 74°.*

DISEASES. Our remarks on the diseases at Belgaum, during the above six months, need only be very brief, as they have not materially differed from those of the same period of last year. Of the principal classes, however, we may say, these took the lead.

In April, mild fevers of the remitting and intermitting types; rheumatism, and dry catarrhal or asthmatic complaints; the two former particularly after the rains. We had also a few cases of Diarrhœa, Colic, Dyspepsia, and two of simple Jaundice.

In May, Colics (chiefly purgings and vomitings); acute Rheumatism; mild Remitting and Intermitting fevers, and Catarrh. On the 30th, one well marked case of Dysentery, the first of the year. In all, strictly, that is, well marked; Colics, twelve; Rheumatism, nine; Remitting fever, eight; Intermitting, one.

In June, again, Fever, Rheumatism, and Catarrh; and in the end of the month, Dysentery. In all, well marked, Remitting fever, ten; Intermitting, one; Rheumatism, nine; Catarrh, six; Dysentery, (Colitis), three.

In July, Catarrh and Bronchitis, Fever, Dysentery and Rheumatism. In all, well marked; Catarrh and Bronchitis, ten; Remitting fever, seven; Dysentery, six; Rheumatism, five.

* Our notes of the weather &c, in the beginning of October, have been lost.

In August, Bronchitis, Rheumatism and Fever, particularly the former about the middle of the month. Also a few cases of Catarrhal Ophthalmia, Cynanche Tonsillaris &c. One fatal case of Hepatic abscess, and one of Colitis. In all, strictly; Bronchitis, twelve; Rheumatism, twelve; Fever, nine.

In September, Catarrh, Rheumatism, Fever and liver complaints; and at the close of the rains, one case of Cholera, together with a few of Colic nearly approaching to it.

Fatal Cases. The most fatal diseases have again been, those of the Heart and Aorta; Dysentery and Hepatic abscess. The first on admission, was marked Carditis, but upon what grounds, does not satisfactorily appear. The subject of it,

Private Michael McGinn was admitted, it seems, on the 24th of May, complaining of pain on pressure under the border of the left false ribs, without cough or other pectoral symptom; with the exception of a somewhat more energetic impulse of the heart than natural, raising the chest a little; pulse rather small. Was cupped to ℥viii. over the seat of pain, and had a purgative. He died suddenly on the morning of the 27th.

Autopsical report by Dr. Hibbert; Heart very slightly exceeding the natural size, and the difference consisting in a thickening of the left ventricle only.

Abdominal cavity, on being laid open, exhibited an immense quantity of coagulated and dark blood, filling up the interstices throughout, and occupying particularly the cavity of the pelvis, within the mesenteric folds.

No cause can be adduced, but a general effusion from the mouths of the vessels, since, from injections thrown into the Aorta and Vena Cava, no effusion within the cavity resulted. No other abnormal appearance.

The only remark we need make, is, if the disease, as is supposed, belonged to the Hæmorrhagica, the increased energy of the heart may be accounted for, without supposing hypertrophy of the left ventricle, which, indeed, the weak pulse would seem to contradict.

The second and fourth were cases of Aneurism; the one of the thoracic, and the other of the abdominal Aorta. These, "Murray" and "Whyms," are already before the Society.

The third and fifth; the one on admission marked "Diarrhœa," and the other, "Febris Remittens," were cases of, or at least terminated in, hepatic abscess: they require no comment. The sixth, acute Dysentery, terminating in ulceration of the colon, and in no particular, differing from the ordinary dysentery of the rainy season.

The seventh was a very obscure case, and led to much false conjecture. At one time, it was supposed to have been hepatitis running to abscess; at another, hepatic abscess conjoined with dy-

sentery; a very common occurrence, at that season; at another, tumor over the aorta, from the strong impulse, and at one time, even aneurism. The subject of it,

Private Matthew Sellard was first admitted on the 11th of June with diarrhœa, accompanied with pain on pressure in the hypogastric region, for which he was leeched, and took medicines, chiefly absorbents and opiates, with occasional laxatives; and so far recovered, as to be able to return to his duty on the 14th of the following month. On the 19th, was again admitted with similar complaints. The pain on pressure was now in the epigastric region, where a firm circumscribed tumor was very perceptible, yielding a sharp heaving impulse. Soon after, he became subject to occasional vomiting, and at last, his symptoms assumed a decided hepatic and dysenteric character: under which he rapidly sunk. Died on the 21st of September at 3 A. M. *Autopsy;* 11 A. M. Liver enlarged and of a very pale yellow colour, very soft and lacerable, having from its free edge hanging, and firmly attached to the transverse colon, an encysted tumor the size of a large egg, filled with soft brain like matter, and its cyst lined with gritty and osseous plates and spikes. The colon, particularly, in its transverse arch, was extensively thickened and ulcerated.

Besides these, there was a fatal case of colitis in October, not included in the seven.

On the 21st of October, the 2nd or Queen's Royal Regiment left Belgaum; embarked at Vingorla, on the 30th, in the Semiramis Steamer, and Taptee Brig; and reached Bombay on the 2nd of November; where, they immediately disembarked, and went into Fort George barracks. On the 17th, about 580 of all ranks, picked out, were embarked in the Danish ship Syden and Euphrates H. C. Brig, for Field Service in Scinde; about 490 in the former, a vessel of 750 tons. This, the Head Quarter Ship, was extremely crowded, in consequence of the number of Camp followers; provisions and stores were also put on board; in all, we reckoned 720 souls. A great number of the officers and men, of course, slept on deck, and the rest were so closely packed, that it was almost impossible to find a way, through, amongst them. The ship, however, had an excellent gun-deck, and a degree of ventilation was kept up by means of the gun-ports, during the short period we were on board.

At first, the weather was very favourable, fresh breezes and rather cold in the morning, but latterly the winds were light, often tending to calm; till off the Indus, on the morning of the 27th, when we had a strong cold northerly wind, which carried us within a few miles of the anchorage, off the Hujamree mouth. Here, it fell calm about 1 P. M. and the current running strongly out, we dropt anchor; but in the evening, got up to the other ships, two miles or so from the bar.

Next morning, at the recommendation of a Medical Committee, of which, the Superintending Surgeon was President, the native followers were immediately put into other vessels, and one Private with Hepatitis, ordered on board the Steamer. At 2 P. M. the disembarkation of the troops commenced into native boats, to go 18 or 20 miles up the river; but, chiefly from the scarcity of these, all did not get on shore, till the morning of the 1st December. A great majority got up in one tide, in from four to five hours; but, I believe, all had at least one night in the boats. The detachment from the Euphrates Brig, rejoined on the morning of the 2nd.

Two miles from Vikkur, on the opposite, the right bank of the Hujamree, the regiment pitched on dried mud and stubble; where, they were gradually joined by the rest of the Bombay Division of the army of the Indus, about 5, or 6000 of all arms. * The en-

* *Extract from the Author's Annual Statistical Report of Lower Scinde, Cutch Gundava, Sewestan, Afghanistan, and Beloochistan, from* 1*st December* 1839 *to* 31*st. March* 1840.

Lower Scinde, or that portion traversed by the "Corps d'armee," may be described, to be a low flat alluvial stripe or belt, running nearly North and South from the Hujamree mouth of the Indus, in latitude 24° to Larkhanu or Shikarpoor in 28° North, and extending from 67° 40′ to 69° 20′ East longitude.

It is bounded on the West by a dry, barren, stony and rocky soil, which gradually rises to, and terminates in, the Hala and Lukkee ranges of mountains, at the distance of from ten to forty or fifty miles; and on the East, by extensive sandy deserts. Rain is I believe, extremely unfrequent, and the land solely dependant upon the river for artificial irrigation.

The soil, a light clean, dusty mud, is extremely fertile, and the whole country, with capital, under a paternal Government, might be rendered a perfect garden. Wheat, sugar cane, and cotton, seem at present to be its chief productions; the two former grow very luxuriantly, but the latter was not in season. Scinde is subject to high winds with driving dust, which renders every thing extremely uncomfortable; but the climate appears to be very healthy, and ophthalmia, by no means frequent.

Our further remarks must necessarily be confined to the line of march, from the Hujamree mouth, along the right bank of the river to Larkhanu, or rather, to the desert, which stretching across from the Hala mountains to the vicinity of Shikarpoor, separates Scinde from Cutch Gundava, and, this we shall divide into three portions.

1st, The Delta, through which, the river, at that time chiefly by the Hujamree, empties itself into the Sea.

2nd, The right bank of the Indus, from where, the right branch is given off, twelve miles below Tatta, to where, the Lukkee mountains touch the river. And 3d, from the Lukkee range to the desert, twenty miles, or so, beyond Larkhanu. The first is altogether a dry, dusty, alluvial plain, in tolerable cultivation; near the different branches of the river, but, towards the central parts, rather

campment was about 300 yards from the river; the banks of which, at that part, are abrupt and clean, and ten feet perhaps above the level of the tide.

Here, our Brigade, the first of Infantry, composed of the 2nd or Queen's, the 1st or Grenadier, and 5th, Regiments of N. I. remained till the 26th of the same month, when it commenced its march upon Tatta, through dusty alluvial plains, partially covered with low shrubs and jungles, interspersed with dry stubble fields, eight miles. Crossed a small branch by a pontoon bridge, and pitched, a

high, desert and nearly destitute of water. The principal town is Vikkur, about twenty miles up the Hujamree; it is a tolerably sized village, situated immediately on the left bank, in a low flat, but comparatively well cultivated country. It is the chief port (or was at that time) of the Indus, and the resort of a great many small craft, both river and sea going. The bar at the entrance of the Hujamree, is a great drawback; in 1838—39, it had six to ten fathoms at high water, with a heavy surf upon it. No vessel can enter from May to the middle of October; that is, during the South West monsoon, and rise of the river (This Season 1839—40, the Hujamree is not the chief outlet, nor is it navigable into the main stream).

The streets of Vikkur are very narrow, and the houses or rather huts, low flat roofed, and built of wicker work daubed with mud. Its population I dont know, or its manufactures, with the exception of earthen ware, chiefly hand mills for grinding corn; their being no stones in this part of the country. The banks of the river in the neighbourhood of Vikkur, and indeed, every where along the Indus, present a new formed, or clean, broken, dried, muddy surface. No where, do we see vegetation in a decaying state.

The second, or that portion extending from where, the right branch of the Indus is given off, to where, the Lukkee range touches the river, consists of the alluvial deposit, and is of various breadth, generally, from one to three miles, jutting in, sometimes, a considerable depth up the valleys. From the elevation of this bank, it is not so easily watered, and is, in consequence, in a very indifferent state of cultivation, with the exception of the vicinity of Tatta and Jerruk. Besides, a great part of it, particularly, from about thirty miles south, to as far north, of Hydrabad, is converted into Shikargahs, or thickets for the preservation of game.

There are some fine lakes a mile west of Tatta, and again, ten miles north of it; and one very extensive in the neighbourhood of Lukkee, a village near the extremity of that range of mountains. In all, the water is excellent, with the exception perhaps of the last, which from its vicinity to some hot sulphureous and cold, saline springs in the mountains, a couple of miles or so from the lake, is, liable to be more or less impregnated with these. The chief sources of all these lakes, is, no doubt, the river, and the water is preferable from its comparative clearness. The Indus water is always very muddy.

Of this portion, Tatta is the principal town; it is situated upon a dry elevated piece of ground, about half way between Vikkur and Hydrabad; both, however, on the opposite or left bank, and from the heights to the southward, presents rather a grand appearance, which gradually vanishes on a closer ap-

mile on the opposite side, in dry stubble. On the 27th, marched over extensive, level plains, pretty clear and open, and afterwards waste, dusty flats, scattered over with low shrubs and stunted jungles, ten miles. Pitched again in dry stubble; clean water scarce, and brought from some distance. 29th. Crossed the desert, seventeen miles, over dusty wastes, partially covered with stunted shrubs and bushes, with here, and there, patches and belts of high trees and jungles; from the 10th to the 15th mile, before opening upon Gholum Shah, rather dense.

proach. The elevated site gives the houses a lofty appearance; and the smooth, light colored mud of which they are built, that, of polished stone. Tatta is surrounded by a broad plain of the alluvial formation, scattered over with corn fields, high trees and tamarisk jungles. The river, I believe, formerly ran to the west of the town, but now, it is three or four miles to the east of it. The soil is here damp underneath, and a salty crust is in many parts visible on the surface; during the rise of the river, a great part of it, is, I understand, inundated. We have already noticed the hot sulphureous, and cold saline springs in the neighbourhood of Lukkee. The temperature of the former, we found to be from 103° to 105°, but the latter, we had no means of analysing: every thing not absolutely wanted for daily use, having been sent up the river in boats, from the scarcity of land carriage.

We now come to the third portion, or that, which extends from the Lukkee range to the neighbourhood of Larkhanu. By far, the greater part of this, is an alluvial island, bounded on the east by the Indus, on the north-west by the "Nara," a branch of the Indus given off near Larkhanu, and on the south-west by the "Aral," a continuation of the same stream, which rejoins the Indus at Sehwan. This island is well watered, and, particularly so, its southern extremity, from an extensive lake which runs eight or ten miles inland. The island is in general more fertile and populous, than any other part of Scinde, which we passsed over. The last days march, only, we found waste and jungly, that is, across from the Indus to the Nara. Of this portion the principal towns are Sehwan and Larkhanu; one near each extremity, but, neither of them, on the island. Sehwan is a small port on the right bank of the "Aral," close to its junction with the Indus. Larkhanu is eight miles or so inland, north of the Nara, and ten or twelve west of the Indus. This last seems to be rather a populous place, with a good deal of cultivation about it, and along the banks of a canal, which runs from the Indus to ten or twelve miles west of the town. This canal was dry, when we were there in March and December, but, water was plenty even for irrigation, raised from wells in its bed, by the common wheel. From the immediate vicinity of this canal, however, north to the desert, the country is very waste, and nearly destitute of water; and in consequence, the Bombay portion of the Force, now, about three thousand, had to cross in three divisions. Of the population or manufactures of either of these last two portions of lower Scinde, I have no knowledge, never having been in any of the towns or villages, farther, than marching through them with the Regiment.

Left Gholum Shah, some miles, to the right, and crossed the right branch of the Indus, rather more than knee deep, and pitched on the opposite bank, dusty sand: did not get in till 3 P. M. The troops latterly suffered much on this march, from driving dust, and thirst, but, the latter only for a mile or two, the supply sent half way not having been exhausted in their canteens, till about that period. Halted the 29th, and on the 30th, crossed the heights to Tatta, twelve miles; the first part, dusty and jungly; afterwards, stony with thick prickly bushes. Passed over the eastern extremity of an old fort, down into the former bed of the Indus, flat and dusty, but partially cultivated, and more or less covered with Tamarisk and belts of high trees, the latter, particularly, as we approached the city. Pitched to the west of Tatta, at the foot of what appeared to be a low ridge of hills, covered with tombs; the former bank of the river. Good clear water in lakes, at the foot of these; the river is three or four miles distant.

To avoid repetition, we may here say, the line of march from the right branch of the Indus to Sehwan, at the termination of the Lukkee range of mountains, lay, partly over the original formation, a perfectly barren, stony and rocky desert; and, partly over the alluvial deposited from time to time by the river, a rich dusty mud, partially cultivated, where water for irrigation is easily obtained; the crops consisting chiefly of wheat and sugar cane, every where rich and luxuriant. The rest, waste, partially covered with low shrubs, tamarisk and babul, with, here and there, extensive tracts turned into thickets for the preservation of game.

Remained at Tatta till the morning of the 23rd, when the whole Force moved upon Jerruck, thirty miles. Reached that, on the 25th and pitched, all, except the 1st Infantry Brigade, on the rocky terraces to the left and front of that village. The 1st Brigade, in advance on the alluvial plain below. River here embanked about 500 yards to our right.

On the 3rd of February, marched upon Kotree, opposite to Hydrabad, where, we pitched the following day twenty-three miles; again, upon the alluvial bank. Commenced our march upon Sehwan on the 10th; reached the village of Lukkee on the 16th, seventy-five miles, and pitched round on the alluvial, dry, dusty mud; one and a half miles from the hills. In these mountains, directly in from the village, were discovered cold saline and hot sulphureous springs; the temperature of the latter, from 103° to 105°. On the 23rd, crossed the low point, where, that range touches the river, to Sehwan; twelve miles, and again, pitched upon the alluvial.

From Sehwan to the Aral river, near Larkhanu, the soil is altogether a rich dry mud, tolerably well cultivated, and the villages comparatively numerous and populous. During the first ten miles it resembles a rich park, and is plentifully supplied with water, from the rivers and a large winding lake. The last seventeen miles, only, that is, across from the Indus to the Aral, is waste and jungly. Left Sehwan on the 25th; crossed the Nara river by a pontoon bridge, and reached Aral, near Larkhanu, on the 2nd of March; eighty-five miles. The Infantry crossed, the same night, by moon light; and on the following day, the men and baggage in boats. And on the 4th, moved on to Larkhanu, nine miles, where they were followed by the Artillery and Cavalry, a few days after: soil still alluvial. Water and supplies at Larkhanu, abundant.

Here, three regiments of Native Infantry, and a proportion of Artillery, were detached to Bukkur and Sukkur, near Shikarpoor; and the sick and weakly men of the other corps, picked out (forty-seven from the Queens), to be sent to the Depot, about to be formed in that neighbourhood.

Left Larkhanu, on the 11th, in three Divisions, Her Majesty's 2nd and 17th, leading; and on the 23rd, reached † Kotra (four villages),

† *Extract from the Author's Annual Statistical Report.*

Cutch Gundava, situated between Scinde on the south, Beloochistan on the west, and Sewestan on the north, and comprehended in from 27° 30′, to 29° north latitude, and 67° 30′ to 69° 30′, East longitude; may be described to be a triangular alluvial plain, or delta, having its base resting upon a dry, flat, alluvial desert, from twenty-five to forty miles in breadth, which stretches across about N. E. by E. from the Hala mountains to a little north of Shikarpoor; and its apex terminating near Dadur, at the entrance of the Bolan pass. Its height above the level of the sea, I do not know, but, it cannot be much more, than that of Scinde, of which, indeed, it might be called a continuation. It is bounded, on the north, and west, by high barren mountains, which rise abruptly from the plain, and is, partially at least, intersected by a low ridge running across, eight to twelve miles south of Dadur. Its eastern boundary, I do not know, but, believe it to be also mountainous.

The simplest idea of this country, is, that it is the alluvial deposit washed down through the Bolan and Gundava passes, filling up a large triangular valley, which, at some early period, may have afforded channels to these rivers, from their exit from the mountains to the Indus. The intervening desert is exactly of the same formation, and would seem, simply, to be in consequence of the water being now expended in irrigation or drunk in by the soil, before reaching it.

Rain, as in Scinde, is extremely unfrequent. The soil of Gundava, is a deep light coloured, rich, dried mud like that of Scinde; but from the scarcity of water, only small portions, near the villages, are cultivated. When cultivated, however, the crops, chiefly wheat and barley, are rich and luxuriant.

near the entrance of the Gundava pass, in seven marches; one hundred miles. Pitched on the northern bank of the deep channel of what seemed to have been a large mountain torrent, but, at that time nearly quite dry. Encampment here very confined, and intersected by running streams.

The soil, and general aspect, of the country traversed on this march, were very similar to Scinde; except, about thirty miles of a desert, stretching from north of Shikarpoor into the foot of the Hala mountains. South of this desert, water is very scarce, raised from deep wells by the common wheel, but, north, it is more plentiful, and found in running streams, issuing from the mountains; in, and about, Kotra, it is clear, cool and abundant.

WEATHER. On the march, and passage to Bombay, the weather was dry, and in the mornings cool; but, in Bombay, hot and close. At Vikkur, in the beginning of December, very cold during the night, sometimes with dark clouds, during the day, and during dusk. Then, rather warm about the middle of the month, but again, towards the end, the first quarter of the moon, extremely cold; one morning a piece of ice was picked up. At Ghollum Shah-ka-kote, where, we halted on the 29th, the wind all day blew keenly from the north, darkening the air with dust, to such a degree, that neither sun nor clouds could be seen, nor even, tents distinguished a hundred yards distant. The Thermometer, that day, I believe, did not rise above 62°.

At Tatta, also, on the 31st, we experienced similar weather; but with less dust; a dark cloudy bank to the north, seems to be the presage and accompaniment of these winds. Thermometer's highest diurnal range in December, 80°. Lowest at 7 A. M. 39°. Only a few drops of rain on the 29th.

In *January*, at Tatta, we had very heavy rain in the nights of the 14th and 15th; about the change of the moon; and lighter showers with close sultry weather during the day; but, with these exceptions, the month continued dry, occasionally, with high winds and dust, gradually, becoming milder till about the 23rd, the first quarter of the moon, when the nights, particularly, again, became very cold, and

The principal places, we saw, in Cutch Gundava, were Jull, Kotra, and Dadur; the two former near the entrance of the Gundava, and the latter of the Bolan pass. Kotra and Dadur appear to be pretty large towns, but of their population or manufactures, I can give no information, having been in neither of them.

so continued to the end of the month. Thermometer's highest diurnal range in January, 73° to 88°. Lowest at 7 A. M., 46° to 60°, except the 16th, the morning after the rain, when it was as high as 67°.

February. Again, had rain at Lukkee on the 18th, and 19th, with thunder and lightning; the rain very trifling with us, but heavy seemingly, on the other side of the mountains, and, as we afterwards heard, also at Amree, our previous encampment. Weather then close and sultry. Even, from the commencement of this month, it began to get very warm during the day; and generally speaking, gradually increased. High winds with driving dust from the 11th to the 13th, filling the tents and rendering every thing extremely uncomfortable. The only cool weather was during the first quarter of the moon, on our march from Sehwan to Larkhanu. Nights however always cool; and during the first quarter of the moon, very cold. Thermometer's highest diurnal range in February, 80° to 96°; highest during the high winds. Lowest at 6 A. M. 42° to 62°; lowest on the 26th and 27th.

March. Chiefly spent between Larkhanu and Gundava, near the Hala range of mountains; was generally speaking extremely warm during the day, with cool, sometimes, very cold nights, particularly, towards daylight of the 11th. Thunder, lightning and rain on the evening of the 12th, the latter very heavy a little to the north of us; and again, rather wet and boisterous at Ketcheree on that of the 18th. Thermometer's highest diurnal range, 85° to 100°. Lowest at 7 A. M., 46° to 69°.

DISEASES. On the march from Belgaum, there were no fresh admissions of moment; but, immediately,on our arrival in Bombay, Diarrhœa became frequent, termed Colica in the returns, from its resemblance to the attendant and precursor of cholera. Two hepatic cases were admitted on board the Syden, and both proved fatal, we suppose, by abscess; but with regard to the one, no post mortem examination could be made, from the very crowded state of the vessel; and the other died on board the Steamer Semiramis, after the Regiment had disembarked.

In Bombay, we had also a few cases of remitting fever, but more particularly during the last few days on board the Syden, all of which last, terminated in intermittents. The cause of this fever, we have no doubt, was the over-crowded state of the ship. It commenced, when we had been about a week on board, and disappeared immedi-

ately after the disembarkation of the Regiment. The health of others was deteriorated perhaps by the same cause. One young soldier, in particular, Private James Mortimer, after suffering for months under bowel-complaint and fever of the remitting and intermitting types, had, at last, to be sent to a fixed hospital at Bukkur.

Bowel complaints. In Scinde, immediately, on the arrival of the Regiment, bowel complaints under the heads, Diarrhœa, Colic and Dysentery, began to prevail, and particularly during the first ten days in December. They, then, gradually fell off till after the 25th, on the march upon Tatta, when, they again increased both in frequency and severity.

Some of the Native Regiments, on the march, suffered from Cholera, but the only case, in the Queens Royal, was on the 29th at Ghollum Shah-ka-kote. On the 28th, we had a very long, hot and dusty, fatiguing march across a desert, and just before reaching our ground, the men had to wade the river, at that season, very cold. The same night, this man went on out-lying picquet, and at 8 A. M. presented himself with a severe Diarrhœa, which immediately lapsed into Cholera. The day was extremely cold, and with the dust very much resembling a snow storm; no means we could use, in the least, restored the heat, though, the pulse was still perceptible till 9 P. M. He died at 1 A. M. of the 30th; and was buried at daylight, just as the regiment was leaving the ground.

At Tatta, in the begining of January, these bowel complaints reached their acme; always worst in the cold weather, but after that, they gradually became milder, though, they continued more or less up to the latest period, and particularly on a march. The type of the disease was chiefly Diarrhœa (serous); and in this form, also, a great many of the Officers suffered particularly at Tatta, two or three severely. A few cases, from the accompanying tenesmus with blood or slime, were denominated Dysentery, though perhaps not very correctly, and others, when pain in the bowels was a prominent symptom, were termed Colic. In almost all, the tongue was clean and healthy, the skin cool and pulse natural; the evacuations watery and passed instantaneously.

Causes. With regard to the causes of this disease, great variety of opinion has from time to time been entertained; but these, we consider, were the essential; the great diurnal variations of temperature in a peculiar climate. In a "peculiar climate" is certainly a very vague expression, but, I do not see, how we can come nearer. A great dif-

ference of temperature between day and night, does not, even, in a majority of instances, give rise to the epidemic Diarrhœa, and, therefore something else must have been superadded, of which, we know nothing. It has been attributed to the water, but, the prevalence of the disease from the mouth of the Hujamree, throughout the whole of Scinde and in Cutch Gundava, we think, sufficiently disproves that. Again, it has been attributed to the flour and rice not being clear of the husks; and no doubt, many suffered, who, but, for this additional, might have escaped; but still, many also suffered, who had not been subject to this cause. It has been attributed to the copper cooking pots, not having been regularly tinned. The Native Troops, and camp followers, suffered in an equal degree; and the Diarrhœa continued, after the pots had been newly tinned. Again, it has been attributed to malaria, and damp immediately under the surface. But, it continued where no dampness existed; and with regard to malaria, that may, or, not be; but, the "peculiar climate" will include this. It seems difficult, however, to conceive, how the same malaria could exist in, or follow, the camp, throughout all our wanderings.

We have said, then, the essential causes were the differences of temperature between the day and night; and these were rendered more efficient, by such causes as diminish the constitutional powers of resistance; to wit, fatigue from loss of sleep and continual long marches, and night duties, as out-lying picquets and such like. The heat of the day, keeping up a very free exhalation from the skin, we shall call the predisposing, and associate with it, loss of sleep and fatigue. The exciting, the cold chill of the night checking this exhalation, and with it, associate night duties. The cause will therefore resolve itself, simply, to checked perspiration, acting upon bodies with a peculiar predisposition; this predisposition, the effect of climate.

Treatment. With reference to this, we found ten grain doses of blue pill or calomel with one or two of opium, once, twice or oftener in the 24 hours, followed by castor oil with laudanum or sometimes by epsom salts, answer very well. Then hydr. c. creta with dover's powder every three or four hours, or dover's powder alone with an occasional aperient. Sometimes, blue pill and rhubarb during the first stage of convalescence.

In the Dysenteria, V. S. ad ℥viii or ℥xii preceded the above treatment, and castor oil, or sulph. magnesiæ, were more freely administered. No deaths by this disease, nor indeed, by any, in Scinde with the regiment; except, the one with cholera.

In illustration, we shall now subjoin a short abstract of a case of each.

CASE 1st. *Dysenteria Acuta.* December 17th, Private John McDonald; Complains of frequent ineffectual calls to stool with tenesmus; of a few days standing; skin cool; tongue clean; appetite pretty good; pulse natural. Statim Habt. Pil. Hydrarg. grs. x. c. opii. grs. i. *Meredie*, Ol. Ricini ℥vi. c. Tinct. opii. m. xv.

Vesp. V. S. ad ℥xii. Rept. Pil. Hydr. c. opii. gr. i.

18th. Blood not sizy: motions in the night frequent, watery and passed involuntarily; skin cool; pulse moderate. Calomel gr. xx. c. opii. gr. ii. *Vesp.* Rept. Calomel et opium.

19th. Motions less frequent, and not passed involuntarily, but with more tenesmus. Ol. Ricini ℥iiss. c. Tinct. Opii. m. xv; ter indies. *Vesp.* Pil Hydr. gr. x. c. Opii. gr. i.

20th. Only twice up in the night, and without tenesmus; skin cool; abdomen rather resonant. Rept. Ol. Ricini, c. Dover. Pulv. gr. x, ter indies.

21st. Hydr. c. Creta grs. vi. Pulv. Doveri, gr. v. ter indies.

23rd. Convalescent. Sent up the Indus, with the other sick in the boats.

January 5th. Duty.

CASE 2nd. *Diarrhœa.* December 8th. Private William Steel. Ætatis, 26. Five years service; three in India. Complains of frequent watery purging of eighteen hours standing; skin rather warm; tongue white; pulse eighty-four. Pil Hydr. gr. x. c. Opii. gr. i. *Meredie*, Ol. Ricini, ℥vi. c. Tinct. Opii. m. xv. *Vesp.* Pil. Hydr. grs. x. c. Opii. gr. i.

9th. Fever last night from nine P. M., preceded by shivering; skin still rather warm; pulse eighty-four; bowels only moved twice. Sulph. Magnes, ℥ii. ter indies. *Vesp.* Pil. Hydr. grs. x. c. Opii: gr. i.

10th. Two motions in the night with slight tenesmus; frequent yesterday; no fever; pulse seventy-two. Ol. Ricini, ℥iii. c. Pulv: Doveri, gr. x. ter indies.

11th. Frequent loose green motions in the night. Skin cool; pulse seventy-two. Continue Ol. c. Tinct. Opii.

12th. Only once up in the night. Pil. Hydr. gr. ii. c. Rhei gr. ii. ter indies.

13th. Only twice up in the night. No tenesmus. Contin. 14th. Convalescing. Nil.

19th. Duty.

CASE 3rd. *Colica.* December 10th. Private John Coackly. Ætatis 33. Admitted with frequent watery purging of some days standing. Skin cool; tongue clean; pulse seventy-two. 9th. *Vesp.* Pil. Hydr. grs. x. c. Opii. gr. i.

10th. Ol. Ricini, ℥iii. c. Pulv. Doveri gr. x. ter indies. 11th. Feels pretty well. Pil. Hydr. gr. ii. c. Pulv. Rhei. gr. ii. ter indies. 13th. Bowels not moved since yesterday morning. Contin. pil. 14th. Convalescent ward. 15th. Duty.

Case 4th. *Febris Remittens.* December 5th. Private Joseph Cross. Ætatis 32. Admitted at four P. M. yesterday in the hot stage of fever. States that at seven A. M., he was seized with shivering, in an hour followed by increased heat. Skin still hot; tongue loaded; anorexia; thirst; bowels had been regular; purged in the night by the medicine; pulse one hundred and twenty.

Five P. M. Calomel gr. x. c. Pulv. Antimon. gr. x. et Jalapœ Comp. gr. xx. statim. 5th. Solutio. Tartarizat. 2d q. q. hora ʒii. 6th. Feels much better; bowels free; skin cool; pulse seventy-two. Sulph. Quinine, grs. ii. 2d q. q. hora.

7th. No return of fever. Contin. Ten A. M. Solutio. Tartarizat. at antea. *Vesp.* Calomel, gr. iv. Pulv. Antimon gr. x.

8th. Fever returned at eight A M. with shivering. Sweating from eleven P. M. till two A. M. Skin still warm; tongue tolerable; thirst; anorexia; bowels open; pulse ninety-six. Sulph. Magnes ʒiv. statim. dein, Sulph. Quininæ gr. ii. 2d q. q hora.

9th. Apyrexia. Contin. Quininæ. 10th, Contin. 12th, duty.

Case 5th. *Febris Intermittens Tertian.* December 6th. Private William Haywood. Ætatis 34. Admitted yesterday at eleven A. M., in the cold stage of ague. Sweating in the night. Skin now cool; tongue clean; pulse sixty-eight. Says he had a similar attack two days ago. Bowels freely moved in the night. 6th. *Noon*, Calomel gr. vi. c. Pulv. Antimon gr. x. et Jalap gr. x. *Vesp.* Calomel gr. iv. c. Pulv. Antimon. gr. x. 7th, Solut. Tartarizat. 2nd q. q. hora ʒii. 8th, Apyrexia. Sulph. Quinin gr. ii. 2nd q. q. hora. 9th, Convalescent; Contin. 12th, Duty.

Camp Kotra,
Near Gunda Gundava;
30th March, 1839.

Article XI.

Medical History of H. M. 2nd or Queen's Royal Regiment, from the 1st of April, 1839, to the 31st March, 1840, — during the Campaign in Affghanistan. By R. H. Hunter, Esq.

Presented August 1840.

The annual report of H. M. 17th Regiment, as well as that of the 2nd Queen's Royal, falls perhaps to my lot this year; being now the only medical officer, who has been with these regiments, during the late campaign in Scinde, Affghanistan, and Beloochistan. But as with the former, I have had no immediate connection, till within the last six weeks, when the campaign was drawing to a close, I can only make an occasional reference to it. As the 17th, however, has been closely allied with the Queen's Royal, during almost the whole period embraced in this report, the history of the one, will, in all material points, be applicable to the other.

The 2nd or Queen's Royal, in company with H. M. 17th Regiment, left Kotree in Cutch Gundava, on the 31st March, and after a very fatiguing march, along the base of the Hala mountains, reached Dadur, near the foot of the Bolan Pass, on the 5th of April; 72 miles. Here we halted some days, waiting for supplies from Shikarpoor, by the eastern route. On the 9th, the 17th were detached up the Bolan, with the Artillery; and on the 12th, the Queen's Royal followed, with Head Quarters and the Cavalry. Halted one day at Siriab in Sowle. On the 26th, again got up with the 17th and Artillery, just as they were getting clear of the Kojeh Pass, and the following evening, continued our march together upon Khandár, where we arrived (227 miles) on the 4th of May; a week after the Bengal Column.

* The whole of the countries, traversed on this route, from Kotree

* *Extract from the Author's Annual Statistical Report.*

Bolan Pass. The Bolan pass forming the only direct communication between Cutch Gundava and Affghanistan or rather Sewestan, would seem to

to Khandár, with the exception perhaps of Pisheen, agreed in their aridity and desert aspect; as also in the nature of their soil, which is a deep, light coloured, rich, alluvial mud, inclosed in valleys between abrupt high barren mountains; but, their elevation above the level of the sea, varies very materially. Cutch Gundava, that is,

have been wrought out, in the course of ages, by streams of water issuing from the high mountains to the south of Sowle, and may be described, to be the partially dried bed of a mountain torrent. It commences four or five miles West of Dadur, and taking a pretty straight course north and west, rises with a gradual, but rather rapid ascent, through a very high and deep ridge of mountains, for about sixty miles, and then, terminates rather abruptly, in the upper part of the valley of Sowle. This pass, at the entrance, and indeed for the first two marches, is, in many places, not more than twenty to thirty paces across, with high mountains on each side, rising almost perpendicular, or, at some parts, overhanging, with scarcely a trace of vegetation, upon them, of any kind.

The third march is more open, and has only a slight ascent, across a broad stony bed or valley. This valley, though quite dry, is every where covered over with smooth stones, like the dry bed of a river. It is situated, apparently, between two ridges of mountains, the lower of which, is towards Gundava, and the higher, towards Sowle. But the fourth, fifth, and particularly the sixth marches, are again narrow, stony, with a much greater, though gradual ascent.— In this Pass, numbers of half naked people were seen every where issuing from the mountains and rocks, into the rear, and carrying off, the abandoned camels, horses, grain, &c ; but, no where did we observe even the trace of a village or hut. We saw a burial ground near the termination of the third march, which, tradition says was the place of a battle at some former period, between two tribes or bands of robbers. This is "Beebee Nanee," at the foot of the higher range of mountains where I believe, there is now a sort of halting place established. Good water is abundant and throughout the Bolan, with the exception of the last march, that is, at Munziljah, or top of the Pass. Here we found none, nor within twelve miles of it, on either side; but we were afterwards told by Natives, that there was plenty a mile or so off to the east, before we got out of the Pass: this is very probable, as we were attacked from that side,— where they must have had water.

Sewestan, Affghanistan and Beloochistan. Affghanistan, including Sewestan, and Affghanistan Proper, and comprehended in from about 30° to 34° north latitude, and 65° to 70° east longitude ; and Beloochistan, the upper half, at least, comprehended in from 27° to 30°, north latitude, and 65° to 67° east longitude, is an immense tract of high, rugged mountainous country, intersected by deep ravines and alluvial plains or valleys of various breadth, but seldom exceeding three to six miles.

In Affghanistan and Sewestan, these valleys, west of Ghuznee, converge, chiefly, more or less from the eastward upon the two great or base plains, Pisheen and Khandár ; both of which, with a gradual slope, open out to the westward. The principal exceptions are the valley of Sowle, which collect-

from Kotree to Dadur, like Scinde, is quite a low country, whereas the valleys of Sowle and Pisheen, above the Bolan Pass, have an elevation of between five and six thousand feet; and that of Khandár, of four thousand. — In consequence, the temperature of the nights, varied very much, but scarcely so, the days, which were every where

ing, as it were, the valleys from the south, takes a northerly, and afterwards a north easterly direction, till it becomes continuous with the upper portion of Pisheen; and some broad valleys, which run nearly south from Ghuznee to the Toorka Hills, where they terminate in an immense salt lake. The valleys of all these countries, are generally quite flat, and the mountains rise abruptly from them. The former are every where covered with low dry looking shrubs, which afford excellent food for camels; but the mountains are barren, and towards Ghuznee and Cabul (to the north-west) more or less covered, or streaked with snow, all the year round. Sewestan, and a great part of Affghanistan, are very arid and desert. Twenty or thirty miles may often be passed over, without being able to find a drop of water; and rain much west of Ghuznee, is I believe, scarcely known.

Valley of Shawl. Shawl or Sowle is an alluvial plain or valley, from three to six or eight miles broad, and six thousand feet above the level of the sea. It commences, a little to the south-west of the exit from the Bolan Pass, takes a course nearly north, between two steep, high, barren ridges of mountains to Kwettah, twenty-seven miles, then bending to the west, round the extremity of the western ridges, it joins another nearly parallel valley coming from Moostong. Again, winding to the east and northward, twenty-two miles, it opens out into a broad, waste looking plain, running about east, north-east, nearly parallel to, but at this part, separated from, the Pisheen valley by a low narrow hilly reef or ridge, through which, the road to Khandár passes.

The whole of Sowle, is very waste, and the villages few and far between. The first seventeen miles, indeed, to Siriab, is a perfect desert, quite destitute of water, but like the rest of Affghanistan, where uncultivated, is clothed with low, dry looking, camel shrubs. About Siriab, but particularly about Kwettah seven miles further north, water is tolerably plenty, with here and there marks of cultivation, and clusters of green fruit trees, inclosed like little gardens; which in April afforded a cheerful relief to the otherwise dreary aspect of the country. Ketchella and Hydarsy, the first eleven, and the last twenty miles from Kwettah, were the only other villages, we came to, in this valley. At the former, there were a few clusters of those green fruit trees; with a tolerable supply of good water at both, but otherwise, all round seemed barren. These villages were deserted, as we passed up, and almost every thing green had been consumed, by the columns in advance, as forage; which no doubt, rendered them still more desolate.

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Kojeh Mountains and Gautee Hills. The first of these, is a high mountain range, which bounds the Pisheen valley on the north, running with that valley nearly east and west. The last is rather a ridge of fantastically peak-

very hot. The Thermometer rising to 100°, 105° or even 110°, in the tents.

The mornings in Sowle and Pisheen, were cold, raw and chilly, (the snow had not altogether disappeared from the mountains of the former), and even from the Kojeh mountains to Khandár, though

ed hills, thirty miles in depth, and every where traversed by barren stony valleys, covered with low prickly camel shrubs. Between, is a dry dusty plain, twenty miles in breadth, partially divided, here and there, by high mountains.

The Kojeh range, towards Pisheen, rises one thousand feet or upwards above the plain below, and towards Khandár nearly three thousand; at least, these plains north of the Kojeh, are reckoned two thousand feet lower than Pisheen. The road, twelve miles across from Abdullah Khan's Fort, is perhaps after all, rather confined than difficult, but, from the Khandár side, it is very steep.

There is good water in abundance, almost every where, in the Kojeh Pass, but from that to the Gautee Hills, there is only one small stream, about half way. This stream, which was cut off by Haji Khan's people, as we went up, answers to the "Kudny" in the maps, and like the rest, from the foot of the Kojeh mountains to near Khandár, is more or less brackish.

At the entrance of the Gautee ridge, there was also a stream cut off by the enemy, and in consequence we only found salt water, till towards evening, when some good wells or tanks, were discovered, three or four miles off. About here, also, were traces of cultivation, and plenty of forage for the horses, but no where else on this line from Abdullah Khan's Fort on the borders of Pisheen.

Amongst the Gautee hills, we found only two very small streams; the one ten the other twenty-two miles from the entrance.

From Larkhanu to the Kojeh mountains, might be called a desert, but this from the Kojeh mountains to near Khandár, is certainly, the desert of the deserts.

To talk of the population of such a country would be a farce; some two or three thousand came out from Khandár, as far as the Gautee hills, to oppose Sir John Keane, with the Bengal Column, and were there joined or in communication with Haji Khan's people, the mountain robbers; but their commissariat soon broke down, and they dispersed, plundering on their return, the villages bordering upon Khandár.

The Kojeh mountains and Gautee hills might have been turned, thirty miles or so to the westward, but in that direction, the country is, if possible, still more desolate, and water so scarce, that many of the marches must have been twenty or thirty miles. It is however, the kafila route (camel caravan), but they make long marches, and camel forage is plenty every where. From the Gautee hills, opens a comparatively well cultivated plain, with two or three villages, along which, the route passes for about fourteen miles, then, turning round the extremity of the hills to the right, it enters upon the valley of Khandár.

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reckoned nearly two thousand feet lower; but below the Bolan Pass, in Gundava, they were warm and close. Here, also, we had a storm of wind and dust, with heavy drops of rain, on the evening of the 3rd of April, and a heavy shower with thunder and lightning on the afternoon of the 4th; but otherwise, the weather throughout was quite dry. Themometer's highest diurnal range in April, 112°; lowest at 6 A. M. 63°. Water on this line is found often only at great distances, and in consequence, the marches are very long, particularly in Cutch Gundava, the upper part of the Bolan, and of Sowle, and from the Kojeh mountains to Khandár. It is generally, however, of excellent quality, except at the part last named, where it is more or less brackish.

At Khandár, from the loss of horses on the march across the deserts of Sewestan, and mountains of Kojeh, and the wretched condition of those which remained, together with the scarcity of commissariat supplies, and other contingencies, it was found necessary, to halt for a couple of months.

Khandár is a tolerably sized city, the second in the kingdom, and the capital of the West, and may contain, I should think, ten to fifteen thousand inhabitants. It is surrounded by a thick mud wall, with double gates, loop holes, and towers, and may be, two miles in circumference. It is situated on a level plain, of the alluvial formation, four to six or eight miles in breadth, and closely bounded by high barren mountains. This plain, in the vicinity of Khandár, is comparatively well cultivated, and scattered over with fine gardens, and orchards, teeming with grapes, apricots, and cherries. It is abundantly supplied with excellent water, conveyed by the common water courses, from a large stream, which passes in a south-westerly direction, three or four miles, N. N. W. of the city, on its way to the river Helmond. This stream is not in the Khandár valley, but in one, which has a free communication with it, through an opening between the mountains. Khandár is said to possess a fine climate during the greater part of the year, but whilst we were there, in May and June, it was a perfect furnace. The Queen's Royal and 17th were encamped together, nearly north and south, on a recently cut clover-field, about five hundred yards, to the south-west of the city; having extensive gardens encircling their right and rear; those to the rear a quarter of a mile distant, or so, and all fenced by high mud walls.

The ground, though dry on the surface, had been recently irrigated, and was nearly so again, by accident, when we were there, but it was clean and well defended from the dust. In May, the weather

was excessively hot, during the day, but cold and chilly in the nights; in the evening often with a dampness, which kept the smoke densely spread over the surface till near 9 P. M. The winds were variable, all round the compass, but the only cool, were from the south-west. Thermometer's highest diurnal range, 98° to 108°, except during the south-west winds, 87° to 98°; lowest at 6 A. M. 50° to 70°; during the south-west winds, 58° to 60°. The first nine days of June, were very hot, with the wind chiefly from the southward. From the 17th to the 25th, again, excessively hot with high squalls and gusts of hot burning winds both day and night, chiefly from the northward. 25th, Hot wind from the southward. Thermometer's highest diurnal range, during the first period, 101° to 105°; lowest at 7 A. M., 60° to 64°. During the second period highest, 94° to 100°; lowest at 7 A. M., 59° to 70°. During the third, 104° to 110°, and from 60° to 68°. No rain in Khandár.

On the 30th of June, General Willshire's Division, including the Queen's Royal, and 17th Regiments, left Khandár; Head Quarters preceding us three days; the Shah two days; and Brigadier Gordon's Division, one day. Reached Kelat-i-Ghilgee, a small hill on which, at some former period, there had been a fort, on the 6th of July, eighty-three miles; and Kharabagh, ninety-three miles further, on the 19th. From this, made a forced march, eighteen miles, on the morning of the 20th, and again another in the evening, seven miles to Nannee, to join Sir John Keane and the Shah. Bivouacked a few hours in anticipation (scarcely so) of an attack from the enemy, whose out-posts were reported to have been in sight, all the previous day; and at day-light of the 21st, marched upon Ghuznee, twelve miles, General Willshire's Division forming the left and rear.

At half past eight, a cannonading commenced in the direction of that fortress, and we were halted till a body of our Cavalry passed far to the rear and returned; when (about 11 A. M.) we again resumed our march, passed to the west of Ghuznee, and pitched upon some dry stubble heights, about a mile from the citadel, which at this side appears very high. At 5 P. M. changed position to the east, the Queen's Royal, and 17th Regiments crossing the river, and passing over the hills, on the extremity of which the fortress is built. The distance we reckoned at seven miles; but the march was tedious, from the steepness of the hills, the river and the numerous large water courses, we had to cross.

Reached the summit of the ridge just at dark; and immediately

after, a rapid firing from jinjalls, guns, &c., was for some time kept up all round the Fort, wherever they had a piece to fire; the garrison supposing, as we afterwards learnt, that the army was off to Cabool. Bivouacked about a mile from the Cabool gate, on some hard dry dusty ground, and next morning pitched tents, and set about preparations for the assault, the following morning. About noon, a rabble army, reckoned at 1500, under a priest, displaying several standards, sudd enly made its appearance on the hills to the eastward, a mile or two distant from our camp; but it was soon driven away again by the Shah's horse and some artillery. Four standards were captured, and a great many prisoners, of whom, the Shah decapitated, about fifty the same evening.

At 3 A.M. of the 23d, precisely, the feint with musketry, in the gardens to the south of the city, commenced; and about ten minutes after, both our batteries, mounting in all twenty-eight guns, were opened upon the walls, &c., about the Cabool gate, the place of attack. In this fire, the explosion at the gate was not distinguished, and the fire itself was, scarcely, if at all, returned; the Garrison having had only seven guns altogether, I believe, and one of these, the large one, could only be fired twice in twenty four hours. One very neat little gun, they had, covering the approach to the Cabool gate; but this when screwed to the utmost, was not depressed within a quarter a mile of it. The gate was most effectually blown up, by the bags of gunpowder laid in front of it, suggested and carried into execution by Captain Thompson of the Bengal Engineers; and immediately after, the storming party consisting of the light companies of the four European Regiments, that of the Queen's as senior leading, rushed in; some little check was experienced by the advancing columns; after this, by mistake, the retreat was sounded, but finding, the light companies did not return, the Queen's Royal the leading column, hesitated. Immediately after, a cheer was heard from within, the advance was then sounded, and after a little struggling and clashing of bayonets and swords in the gateway, all combined opposition was at an end, though several afterwards received sabre wounds, from time, to time, when any intervals occurred between the advancing columns, companies or sections; or where there was any struggling from the fugitives trying to escape by the gateway, all the others having been built up previously by the Garrison.

At a quarter to four the citadel also was in our possession. No defence was made there—great numbers of the enemy, were shot or bayoneted inside the town, expecting no quarter as is usual among these nations, and therefore fighting to the last, when they saw no means of

escape; besides the killed, with shot and shells, and one or two explosions of magazines. Also, numbers were cut off, who had escaped over the walls by means of ropes, &c., by the cavalry outside. In all, I believe, about six hundred were picked up and buried. Hyder Khan, the chief, son of Dost Mahomed, was taken prisoner, and great numbers of his followers. The loss on our side, was very trifling. The Queen's lost most, and that only amounted to three killed, and three, who afterwards died of their wounds. The list of wounded indeed appears large, nearly two hundred in all; but, in these days we were young soldiers, and all scratches were counted. Besides, a third or more, were from falling stones or timber in the crumbling gateway. The Queen's also lost two men on the ground where we bivouacked, the night of the 20th. They were in charge of camels and their bodies were found in a dry well, on our return in September.

From Khandár to Ghuznee, two hundred and eight miles, the route, with the exception of the first fifty miles, lies up an alluvial valley, the lower thirds of which, are watered by the river Turnook. At first, this valley is narrow, deep between the mountains, and the water rather scant and muddy; but it gradually expands, becoming more and more fertile, and particularly above Mookloor. We have discribed this, as one valley, for brevity, but there are two valleys distinct, an upper and a lower. The upper or broad valley of Mookloor, runs in a southerly direction, whilst the lower, or narrow Turnook, branches off from it, to the S. W. On this line, from the time of entering the Ghilgee country, there is neither hut nor village, but the valley abounds with small square mud forts, having numerous towers, which seem to answer the purpose of houses. This is the only populous district we met with, except in the immediate vicinity of the large towns. The soil in these valleys, is the same light coloured mud, as is met with all over Affghanistan, Gundava, and Scinde; except, just where the road comes upon the Turnook, where it is blacker and deeper.

This is about the same height above the level of the sea as Khandár, but from it, there is a gradual ascent all the way to Ghuznee. Kelat-i-Ghilgee is two thousand, and Ghuznee four thousand feet higher than Khandár. In consequence, the climate during the month varied very greatly. Near Khandár the thermometer's highest diurnal range was 101° to 106.°; the lowest at 6 A. M., 68° to 70°—at Ghuznee, 87° to 98°; and 54° to 67.° There was thunder and lightning, and one march a head of us, a very heavy fall of rain near Mookloor; and at Ghuznee, one night, very loud and rapid thunder. Rain

also in the neighbourhood, but very little in camp. These were at the new and full moon, respectively.

Ghuznee is situated at the convergence of two valleys, which unite to form the great valley of Mookloor; upon a high rock, half detached, by a low narrow neck, from a mountain ridge, which rises with a gradual slope to the northward; and consists of a citadel, built upon the summit, and a small walled town, or large village encircling its southern and eastern base. It is reckoned a place of considerable strength. What rendered it more so, in the late campaign, was the want of breaching guns, the only three brought into the country, having been left at Khandár, for want of carriage; and the scarcity of provisions for such a Xerxian army, in a desolate country. The population of Ghuznee, I estimate at three to five thousand; but there is besides, old Ghuznee, two miles or so, up the eastern valley, which is now decayed into a large village, containing perhaps one or two thousand inhabitants. All the valleys in the vicinity of Ghuznee, are in a very tolerable state of cultivation, and particularly the one to the west, through which a large clear stream flows, washing close in front of the fortress.

Having disposed of our serious wound cases, in the citadel of Ghuznee, under staff surgeon Pinhey, H. C. service; and as many of our worst of sick, as could be accommodated; the army resumed its march upon Cabool, in two divisions. Head Quarters with all the Bengal portion, and almost all the Artillery and Cavalry, on the 30th of July; and General Willshire, with the Bombay Infantry, and a detachment of the Artillery and Irregular Horse, in company with the Shah, on the 31st. General Willshire's Division reached Shaikabad, forty four miles, on the 3rd August; there we found Sir John Keane halted. At the same time, heard that Dost Mahomed had fled, leaving all his guns, fourteen miles or so from Cabool, and that Captain Outram, H. C. service, had volunteered to pursue. A party was sent on, to secure the guns, and the following morning, the whole army marched to Maidan, eighteen miles. This day, in consequence of the immense number of camels, and the narrowness of the pass at the Maidan river, all the tents were not up, till the evening. Next morning, marched twelve miles, and pitched upon an acclivity near a small stream, and on the 6th, again twelve miles; the last three over a beautiful, well-watered, and tolerably cultivated plain, thickly strewed over with gardens, and orchards abounding with fruit. The grapes were then in season, and afforded a grateful refreshment to the troops on the march. Encamped at the foot of a chain of hills, which separates this valley from Cabool, on dry but

recently cultivated grounds, intersected by streams of running water.

On the 10th, moved back upon the Ghuznee road, five miles from Cabool, and again encamped upon similiar ground, but at a distance from the hills. On the 23rd, again moved, passed through a narrow gorge immediately in front of Cabool, much confined by walls, gardens, and streams of water. Passed round the outskirts of the city, amongst gardens, trees, and well cultivated fields, three miles, on the Jellalabad road, and encamped upon some heights, between a swampy plain, and a low ridge of stony hills, — the rear of the 2nd or Queen's Royal, and of H. M. 17th Regiments resting on these last. Here, we remained till the 6th of September, when the Bombay column, consisting of the two squadrons of H. M. 4th Light Dragoons, the first Light (Native) Cavalry, two Troops of Horse Artillery, one company of Native Foot Artillery; H. M. 2nd or Queen's Royal, and 17th Regiments, and the 19th Native Infantry with some Irregular Horse, under General Willshire, began to retrace their steps towards the provinces.

On the 17th, halted between our two former encampments, on the plain separated by the narrow chain of mountains from Cabool, near some swamps. Divided the long march between Maidan, and Shaikabad into two. Halted, one day, at the place last named, and again reached Ghuznee on the 26th, where we halted two days, receiving back our sick and wounded, and getting commissariat supplies out of the citadel, for the march upon Kwettah.

To Cabool, the route from Ghuznee passing through the old city, rises over some irregular stony heights, through mountain passes, for the first ten miles, then down an irregular valley from four to six miles broad, having a descent all the way to Cabool. This valley, closely bounded on the east and west by high barren mountains, like the rest of Affghanistan, is partly arable, and partly not; the arable and the barren alternately crossing it. The former consists of the alluvial banks of the streams, which have generally an easterly direction, passing through between the high mountains to the right, to form or join the Logur river; the latter of irregular hard or stony heights. The last stream, and smallest, crossing to the west fifteen miles from Cabool, takes a northerly direction, and at first, rather westerly, but afterwards, I think, it bends round some low hills, into the valley, formerly mentioned, as next to that of Cabool.

The soil of this last valley, or broad plain, is again, of the light coloured dry dusty mud, as are also all the valleys about Cabool; only, in the immediate vicinity of the city, the soil is dark, from more

frequent cultivation, and the consequent admixture of vegetable matter.

The swampy plain formerly alluded to, extends in an easterly direction along the base of the southern mountains, nearly, from the walls of the citadel, for some miles down the valley, towards Jellabad. Besides this, there are other swampy grounds, immediately to the north of the city; whilst water in abundance flows in large streams, through the narrow gorge, and amongst the trees and gardens on the west. The south rests upon the chain of high mountains.

For me, to attempt, to give a farther description of Cabool, would be folly, having only once been within its walls. I may say, however, it consists of a citadel, built on a low promontory of a high mountain, with a large walled town, extending from and encircling its western base. Its markets, when we were there in August and September, abounded with fruit,—apples, pears, peaches, and a great variety of grapes.

Cabool seems to be very populous. Its covered bazaars were literally choked with a living mass; it may certainly contain fifty-thousand inhabitants. We have already said, Ghuznee is four-thousand feet higher than Khandár, that is, eight thousand above the level of the sea, but the highest point we passed over, is at the top of the pass, ten miles on the Cabool side of it. Cabool itself is six thousand, so, that on this route there is a descent of two-thousand feet, that is, in the plains, for the hills rather rise, in an inverse ratio to the north and west, till they terminate in the Hindu Kosh.

Snow was first observed to streak the mountains on this line from Maidan. On those immediately to the west of Cabool, it was observed in the chasms, all August; and on the 24th of that month, about full moon, during the thunder storm, with heavy rain in the plains, they became partially covered; the snow remaining till the following day.

During these storms towards evening, the weather was extremely cold, and every kind of warm clothing in requisition. We had also distant thunder and lightning with sprinklings of rain, on the afternoon of the 23rd and 25th; but otherwise, the weather during this month was quite dry; generally hot during the day, but cold at night. Thermometer's highest diurnal range, 75° to 98°, lowest at 7 A. M. 46° to 64°. Winds variable, but generally from the north or east; strongest from the former, but coldest from the latter.

In September, during the fifteen days we remained at Cabool, the weather was also dry with the exception of the afternoon of

the 7th, 8th, and 9th, (change of the Moon) when we had strong winds and clouds of dust, followed by thunder, and cold rain; the hills to the west, again, becoming covered with snow, which lay till the weather settled. Thermometer's highest diurnal range, 81° to 96° lowest at 7 A. M. 48° to 59°. Winds generally from the N. E.; the snow from the N. W.

During the last fifteen days of September, on our march to, and at, Ghuznee, the nights particularly began to get rapidly colder, and the mornings of the 29th, and 30th, resembled winter mornings in England. Ice was first observed on the puddles, on the morning of the 29th, as we were leaving Ghuznee. The weather, however, continued dry, with the exception of a few drops of rain on the evening of the 25th, about full moon. Occasionally, also, we had high winds, and dust, particularly on the morning of the 26th; and on the afternoon of the 27th at Ghuznee, it was scarcely possible to find one's way through the camp. Thermometer's highest diurnal range, 78° to 98°, lowest at 7 A. M. 42° to 59°. Winds variable; high winds with dust from the southward; cold from the north, and west.

The supplies and other arrangements having been completed at Ghuznee, as far as means would permit, General Willshire resumed his homeward march with the Bombay column, meaning to try the direct route to Kwettah, over the mountains; and this, he was the more anxious to do, as in addition to the greater distance round by Khandár, that line had already been exhausted of forage and supplies of every kind, insomuch that a detachment coming from Khandár; had been obliged to return from Kelat-i-Ghilgee, to avoid starvation.

We left Ghuznee on the 29th of September, and on the 8th October reached the western extremity of the great salt lake, about ninety miles due south, in nine marches, having halted one day at Kela Buksheh. On the 9th, crossed a low hilly ridge, running nearly east and west, into the Torkanee valley, twelve miles; where we were detained one or two days with detachments, out with Captain Outram, amongst the Ghilgee forts.

On the 11th, sending the Light Cavalry by a pass and route directly in front of us, fearing that forage for all could not be procured in one line, General Willshire with the remainder, turned eight miles to the westward; and on the 13th, crossed a treble ridge of steep rocky hills to "Ghondam" (the foot of a hill so called, not a village) where we had again to halt a day to rest the cattle; the artillery, park, &c. not having got up till some time in the night.

On the 15th and 16th, crossed a deeper ridge, through an irregular low hilly pass, into the upper part of the valley of the Urghesan, twenty-four miles; where we again halted a day, for detachments out with Captain Outram. On the 18th, entered the nearly dry bed of the Urghesan, deep between the mountains, ten miles. On the 19th, marched up that bed in a south easterly direction, but winding, crossing, and recrossing the stream, eleven miles to Zawa (not a village). On this line, indeed, there is scarcely the vestige of an inhabitant, from the Urghesan, to the Lorah, or indeed, we might almost say, from the Torkanee valley to the Lorah.

On the 20th, leaving the Urghesan near its source, we turned to the southward over the mountains, away down amongst some low hills; where there was a little water in a stream, fifteen miles. This I think corresponds to the head of the Kuduny in the maps. Three miles further south, in the midst of the same low hilly ridge, is a small nearly circular plain, half a mile or so in diameter, well cultivated, resembling a garden in the wilderness. Through this, we passed on the 21st, and pitched by a nearly dry brook, in more open ground, nine or ten miles; and again, the following day, 22nd, over the most difficult ridge of all, for guns, twelve miles, down into the upper portion of a nearly dry bason-like bed of a river, surrounded by hills. This is Takurak, at the root of the Kojeh range of mountains.

Disappointed of supplies here, and forage of every kind, and fearing, the horses, which had already been subsisting for many days, almost entirely upon a scanty allowance of grain, might perish; General Willshire detached on, the artillery and cavalry with a suitable escort, but halted the infantry one day. The light cavalry had also been here, but finding no forage, had passed on towards Pisheen; taking the route south westward by Mishkee. Resuming our march on the 24th, we wound out of this bason, down the dry bed, round the eastern extremity of the Kojeh range, then over some heights, down to another bed, and so on, into a pretty open valley, where was a stream of water, twelve miles. Next day, the 25th, we crossed another ridge, nine miles, to near "Toba," where is a small fort belonging to Haji Khan Khauker, which made some demonstration at first, but was immediately evacuated, on the appearance of a detachment sent against it, leaving only, however, a little chopped straw (bousa) for the horses.

On the 26th, turning towards the south west, we ascended a sort of pass, three or four miles, and entered again, the bed of a mountain torrent; down which, we had a rapid descent for ten miles (the descent was estimated at near two thousand feet), and there pitched,

three or four miles from where it joins the "Lorah" near some villages and cultivated grounds; here we obtained plenty of forage for the cattle, and all our difficulties were over. Next day, the 27th, we joined the detached artillery, cavalry, &c., nine miles, or so, nearly west, down the bed or valley of the Lorah. On the 28th, keeping down the same bed, closely confined by hills, nine miles, we opened upon the valley of Pisheen, at its western extremity; marched six miles farther, and encamped. And the following day, 29th, fifteen miles to "Hydarsy," where we came upon our old route, and reached Kwettah on the 31st, twenty-three miles.

Total distance from Ghuznee by this route, 300 miles; by Khandár, 350. From Ghuznee to the great salt lake, the direct route to Kwettah, lies down the great valley, which we have already called the valley of Mookloor, keeping at all events for the first twenty miles or so, near the western hills, as it is quite destitute of water near the eastern. This valley or broad alluvial plain, like the rest of the plains of Affghanistan, is of the light coloured dried muddy formation, clothed with a variety of dry, withered looking, camel shrubs.

It may be said, to commence at Ghuznee, and to run in a nearly southerly direction till terminated by the salt lake, and a low ridge of hills, which separates it (all but at the south western angle) from the valley of Torkanee. The upper parts are partially divided longitudinaly by mountain ridges, giving it the appearance of two distinct valleys; well watered comparatively, and in good cultivation, particularly along the western route; though water for an army, is found at more convenient distances by the eastern. The lower parts are more arid and desolate:—indeed, the greater portion below Mookloor, is a vast sterile plain. Water for an army, is however, attainable at pretty convenient distances even here. Near the salt lake, it is brackish generally, but there is good water at the encamping ground, near its western extremity: — we experienced no want.

From the salt lake, southward, all the mountain ridges, and intervening valleys or plains, radiate off to the westward, the latter converging towards the great valleys of Khandár, and Pisheen. Across the root of these radii, is continued this route, as far as the Lorah, to avoid the impracticable ascents and descents further to the westward. The Torkanee valley, the first and only one where there is any cultivation, to speak of, is situated between the low salt lake ridge, and a precipitous treble ridge to the southward.

It seems to be lower a little than the salt water lake; rather populous, well watered, and though small, in very tolerable cultivation,

comparatively; but all the spare grain had been drawn off to Khandár, 100 miles or so to the westward, during the time the army was there. From Torkanee, ridge succeeds ridge, with narrow, nearly barren valleys between, all the way to the Lorah. In the Urghesan and Toba valleys, perhaps, a little may be had, but scarcely forage, even, any where else. Water however is found at tolerably convenient distances, but is more or less brackish, after leaving the Urghesan. No army, I should think, with artillery will ever try the route again, and in an opposite direction, it is quite impracticable. How we got over it, is now indeed surprizing, and with a loss of horses, trifling to that, between Dadur and Khandár, where there are no natural difficulties, except the pass of the Kojeh mountains; and the Kojeh Pass would make little more than a march, in the route, we have now described.

The valley of the Lorah, is little more than the dried bed of that river, which arising out from an immense mountain mass, a little to the east of where the stream we came down, joins it, runs in a nearly westerly direction till it rather abruptly opens upon the vast plain of Pisheen. Here and there, however, along the banks, and between the stream and the hills, are many cultivated spots, several villages, and a few rather pretty forts and other buildings, surrounded with gardens and orchards. The valley of the Lorah, is the chief seat of the Khan of the Kaukers.

Pisheen is a vast alluvial plain, from ten to twenty miles in breadth, clothed chiefly with dry looking camel shrubs, and abruptly bounded north and south, by high barren mountains. Through it, nearly from east to west, flows the Lorah, the stream or small river just now described. Pisheen is only very partially cultivated, and to what we were led to anticipate, half a desert, though much superior to any thing we saw, south of Khandár.

Over it are thinly scattered small villages or square mud forts, but its population, I have no idea of. It cannot be, however, very great. The natives hitherto have been much oppressed by the chief of the Kaukers, who had a pretty strong fort near its eastern extremity, but which was destroyed by the Bombay column, on our return; apparently, much to their satisfaction.

Ghuznee, we have said, is eight thousand feet above the level of the sea, and Toba, the narrow valley next to the Lorah, is scarcely less, so, that on this line there is little descent upon the whole, for the first two hundred and twenty miles. Some parts are higher and some lower: the last is confined to the upper narrow portion of the valley of the Urghesan. Ice we first observed on leaving Ghuznee; but descend-

ing a little the first eight or ten marches, the weather became evidently milder. It was again observed at the western extremity of the great salt lake, but nothing to speak of, till ascending the bed of the Urghesan, and from that to Toba. Here, the water in the basons, in the tents, was completely frozen in the morning. On reaching the Lorah, the weather became rather hot in the middle of the day, and the flies returned, but the nights still continued cold. No rain or snow on this march. Thermometer's highest diurnal range in October, 84°, lowest at 6 A. M. 24°. Winds variable, but generally, northly.

Halted at Kwettah only two days. On the afternoon of the 3rd of November, the Queen's Royal, H. M. 17th Regiment, and the 31st Bengal N. I., together with a detachment of two guns, and about forty artillery men of the Bombay Horse Artillery, four of the Shah's from Kwettah, and the Bombay Sappers and Miners, commenced the march, under Brigadier Baumgardt, towards Kelat, the capital of Beloochistan, and strong hold of our most daring and troublesome foes, the Belooches.

The south of Affghanistan, at best a desert, had become so exhausted, that it was found impossible to take on a larger force, and even with what we had, to leave every thing behind, not absolutely wanted, and reduce the ammunition to the lowest point. The sick and wounded of the Queen's and 17th, having been detached, to go down the Bolan, with the rest of the Bombay column; the two corps mustered little more than six hundred of all ranks, between them. In the whole force, we had short of one thousand bayonets, and without cavalry or large guns, from the wretched condition of the horses, so recently off their march, over the mountains from Ghuznee, and the scarcity or nearly total want of forage on the route towards Kelat.

On the 4th, we were unexpectedly joined by Major General Willshire. On the 6th, reached Moostong. This was some miles out of our way to the eastward, but we were obliged, for want of supplies, or carriage, to carry on, for more than a few days.

Halted on the 8th at Moostong. On the 9th, finding we could not take the direct route, for want of water, we made a march to the westward into a parallel valley, ten miles. Reached Moonguhar, forty-three miles from Moostong, on the 11th; and on the 12th, marched eighteen miles, to within seven miles of Kelat. This morning, before starting, all muskets were loaded, and a strong rear guard, was left to watch a more direct route from Kelat, which opened to the left and rear of our camp. On the march, we heard that the Khan

had been joined by a reinforcement of two thousand, sent up from Dadur, mounted upon camels. This was hailed, as very agreeable news, for we were sadly deficient in these useful animals.

We came upon our new ground about the middle of the day, without having seen any thing; but a report was in circulation, that Captain Outram with some Irregular Horse, which had joined us the previous day, had given chase to a few mounted Beloochees. This night, in particular, every precaution was taken to guard the camp from surprize; and about 3 A. M. the following morning, the 13th of November, we got upon our march as usual, nothing seemingly in any way to interfere with our progress; in so much, that the route by which we should follow the rest of the army, whether back by Kwettah or down the Gundava pass, became the subject of conversation, many having left most of their valuables at Kwettah.

When about four and a half miles, and just before coming to a pass, through a low irregular hilly ridge, a number of horse-men were observed on our right, to dash forward from a low mud building, on the opposite side of a large dried bed of a river, along the bank parallel with the head of the column, or rather in advance; the leader with a white turban mistaken for a hat, shooting across in front of them; which gave rise to a simultaneous exclamation from many voices, "look at Outram." (Captain Outram with some of the Irregular Horse was meant). When, suddenly, they divided, one portion galloping back, parallel to the rear; and the other, close to the bank of the dried bed already mentioned, dismounted and fired their match locks across the front of the column, to the astonishment of not a few. No one was however hit; and skirmishers detached from the 17th, the leading column, for we had no cavalry, and the Irregular Horse were with the baggage, soon drove them up the low hills. At the same time, those who had gone to the rear, perceiving themselves cut off, made also directly up the hills, as fast as their horses could carry them.

The column now halted as usual, having marched one hour and a half, and before moving on again, the men were ordered to see their primings all right. During the halt, two wounded men of the skirmishers, were brought in; and the two parties of the enemy rejoined on the hills, and again began to descend towards the head of the column. We then moved on, and immediately they scampered away, only firing an occasional shot, from the heights, upon the advance.

In the pass, we observed the citadel of Kelat towering up into mid air, presenting a very unexpectedly formidable appearance; and soon after, the advance emerging from between the low hills, at the

exit of the pass, was saluted with a round shot, which fell immediately in front of them, fired from one of the guns, sixty to eighty yards in advance of the fortress. The column halted, and a few shots were fired in return, but finding the range too great, the column was moved up, and off to the left, eighty yards or so, down a sort of dry nulla, on to the skirts of the plain. Here, we piled arms, whilst the advanced guard was sent down to the left and front, to scour the gardens, up nearly to the walls. In the mean time, as the different detachments came up with the baggage, they were ordered to fall in with their companies.

Kelat. In front, and to the proper left, of the north eastern gate, fifty yards, or so, from the northern angle of the fortress, arises, rather abruptly, a low irregular broken hilly ridge; which gradually ascends to the westward, whilst to the north, it expands, circling round, and becoming continuous with the low hilly ridge of the pass. Immediately to the east of this, from north to south, skirting the ridge, and south eastern face of the fortress, stretches an alluvial plain, from two to three miles in breadth. This plain, from where we were halted, is quite level, and for one hundred and fifty yards, or so, to the east of the hilly ridge, clear of gardens; that is, there is a clear level space of a hundred and fifty yards, between the low hilly ridge and the gardens to the eastward, whilst, beyond this line, the valley is thickly strewed with walled orchards, and villages, as far as the high south eastern hills.

Kelat is situated upon the extremity of another high broken ridge, sloping down from the south westward; and consists of a citadel, built upon its north western extremity, where it falls abruptly into a narrow alluvial valley below, and between the low ridge already described; (on this face the citadel rises two hundred and twenty feet above the valley below,) and a walled town or large village, encircling its north eastern and south eastern base, stretching outside the walls to the southward.

There is also a large mud built village, off the northern angle, close under the hilly ridge, forty yards or so from the wall; and forty yards in advance of this, nearer the gate and about thirty from the northern wall tower, were the remains of the south west, and south east walls, of a demolished mud house; the latter having a pretty large door-way in it. This ruin was about half way (sixty yards or so from each) between the lowest crest of the hilly ridge, and the gate of the fortress. There was a low mud wall, also, thirty yards in front of the wall, to the right of the gate, running nearly parallel with it, and a walled garden, a couple of hundredy ards or so, in front, nearer to us, of the eastern wall tower.

From the nulla where we were halted, the peaks of the hilly ridge presented the appearance of three round hills; the two eastern pretty near together, but the right the most retired, towards the fortress. Round this, underneath, by a mosque or large tomb, was the direct road to the gate, but that, was in a great measure concealed from our view, in this direction, by a mud building close in front of the gateway. The third and western hill was much the highest, more detached, and between it and the others, was a narrow gorge or pathway, not seen, till close to the hills. On each of these peaks or round hills, guns were planted, and from them, all the time we were halted, they were continually sending shots. Most of them passed over our heads, one fell very close, and was picked up at the time, to discover the calibre; but it was a small shot, and evidently could not have fitted the gun. They generally fired two or three in rapid succession, and then ceased for a time.

About eleven A. M. or later, orders were issued, to form the three infantry corps into columns of attack; but as our rear guards had not yet come up, each to consist only of four companies; two companies were already in front as skirmishers among the gardens. To each regiment was assigned a hill, the three to be attacked simultaneously. The Queen's to take the right; the 31st the left. The advance sounded, the Queen's Royal moved off, out, clear from the crowd of camels, &c.; and the enemy, as it were, hesitated for a moment to see what the manœuvre was. The 17th followed, diverging to the right; and the 31st still farther; whilst the artillery advanced between.

The enemy now commenced a rapid fire from their guns, from the two eastern hills. Next, our artillery opened and a loud hurrah announced the first shell over the heads of the enemy, on the eastern hill; in fact, those were already dispersed.

On the 2nd, or 17th hill, a shot threw the dust, right over their guns, and they also ceased. From the 31st hill, they now tried to get away their gun, but immediately it went "wheels up", at which there was a loud cheer. They got it up again, however, and hurled it down the hill into the narrow gorge or pathway, where they were forced to leave it, from the close approach of the columns. Not a shot had yet been fired by the infantry. The Queen's and 17th, each crowned their hills and cheered; the former then, made a hurrah for the gate, followed by the latter; whilst the 31st running through the narrow pathway, came through the village close under the hill, where one section in particular, headed by a native officer, having gallantly advanced beyond all cover, to follow the Queen's,

lost some men, whom they afterwards dragged in, in the very face of the enemy on the walls, not forty yards distant:—indeed, throughout, the 31st Bengal N. I. behaved nobly.

Before the Queen's could reach the gate, it was closed, leaving all their guns, and some of their own people, outside. The grenadier company and part of some of the others, now ran back behind the ruined walls of the mud building, formerly described; whilst most of the rest found shelter under the walls of the eastern extremity of the village under the hill. The 17th covered themselves, by lying flat, behind the low crest of the hilly ridge, thirty yards, or so, in rear of the Queen's; whilst the advanced guard, (which from behind the garden in front of the eastern angle of the fortress, had also made a run for the gate, on seeing the Queen's charge from the hill), got under the low mud wall, fifty yards, or so, from the proper right of the gateway.

Immediately after this, the artillery appeared in the narrow pathway between the 31st and 17th hills; but, their horses seemed scarcely able for the task, and trying to get up the sloping west face of the eastern hill, between the Queen's and 17th, they stuck fast altogether. But, immediately, the grenadier company of the 17th, sprang to their feet, and up the hill with them. — Some of the other guns, got on to other heights, more to the westward, and twice sent a round shot through their north western parapets, dislodging those firing upon the 31st. From the south eastern extremity of the ridge, our guns were directed upon the gate, but, most of the shot fell short, in a sort of mud heap, close to the foot of it. One shot, which the artillery men could not get off for sometime, went right over all. The artillery in this position, were cramped by the advanced party of the Queen's in the corner of the old ruin, and one shell actually burst over their heads. At this time, the road over the heights to the southward, was becoming crowded with fugitives, when Captain Outram suggested a show with the Irregular Horse in that direction: fearing the Khan might also escape. This, the Major General granted, telling him, to take a hundred of the best mounted.

By this time, the casualties in the Queen's, were becoming serious, particularly in that portion, which had taken shelter behind the ruined buildings: — from the towers about the gate, the enemy were picking them down, one after another, through the door way. Lieut. Gravatt was killed here, and another officer wounded. No impression was yet made upon the gate, and the ammunition of the artillery was nearly exhausted. General Willshire then urged, upon Brigadier Stevenson, to send round (by the way they came) two guns

down to the plain below, and nearer to the gate. This was done with great coolness by the Shah's native artillery men, under the direction of an English officer, and with scarcely a casualty :—the enemy intent upon the advance parties of infantry, seemed to disregard every thing else.

At the second or third shot, the left half of the gate fell (partially only,) and immediately there was a general hurrah " the gate is down," and a rush from every quarter towards it ; the leading portion of the Queen's Royal, and the advanced guard entering simultaneously, followed by the 17th ; whilst part of the latter, and 31st ran round, under the eastern and western walls, to the southward. Many of the enemy escaped, at this time, over the walls, and ran up the valley and hills to the westward.

All, was now detached fighting, up, through the narrow streets to the citadel. The passage leading to that, could not be found for nearly an hour, and then, it was forced from a prisoner.

The citadel rises by a succession of small square mud terraces, narrow dark passages and rooms : the most difficult to be unravelled imaginable. Every one of these, almost, was the scene of a petty action, in one or two with horrid carnage of the enemy. Of the men of the Queen's, at least, also, every wound almost was fatal ; missing was out of the question. Again and again too, did they treacherously attack our men, even after quarter had been granted them, and some lives were, lost, and several wounds were received in this way, both in the town and citadel. In all, the Queen's Royal had 69 casualties, including 6 officers ; of whom were dead next morning by 8 o,clock, 23.

The total casualties in the force were 138. The killed of the enemy, amounted to about 200, including the Khan, and 7 chiefs. Indeed, all the chiefs except two, who were made prisoners after holding out, in a sort of pigeon-house-looking place over the gate, till near 5 P. M. But the wounded, or the number who afterwards died of their wounds, cannot be estimated.

By 6. P. M. the tents were pitched on the space between the point of the hilly ridge, and the garden to the eastward, 200 yards or so from the gateway, and all the wounded under cover. The following days were occupied in burying the dead, disposing of the prize property, and preparing to continue our march towards the provinces.

Provisions were in the greatest abundance, but the means of carrying them, limited ; and in consequence, we had to take only a bare supply to Kotra in Cutch Gundava. On the 21st of November, the

Queen's and 17th (leaving all their sick and wounded, for whom, proper carriage could not be procured, with the 31st and Shah's artillery, who were to remain at Kelat,) resumed their march southward. In three marches, we reached Sohrab, 41 miles, and on the 24th, turned the hills to the eastward, and entered the Gundava pass. One day we halted at Bapow, the seat of the Khan of the pass, and one day near the head of Panewan (that is " water crossing," no village,) reached Kotra on the 6th of December, and pitched close to the ground we left on the 31st of March. Total distance from Kelat to Kotra, 170 miles. Length of the pass, 124 miles.

From Kwettah, the route to Kelat passing directly to the west five miles, to turn the western ridge which bounds the valley of Sowle, lies up a narrow waste looking valley, destitute of water, except just at the halting places. At the head of this, it crosses the valley of Moostong, which is seen stretching away to the eastward, eight or ten miles, plentifully supplied with water, and scattered over with villages, orchards and corn-fields, the two last particularly about Moostong itself, and enters another waste looking narrow valley, where water is tolerably plentiful for a small army, in a sort of nulla (small stream) which flows down it, into the Moostong valley. At Monguhur forty-five miles, this route joins the direct one from Moostong opening into a broad plain, where abundance of water is found in small running streams. Just here this plain is already fertile, and capable of great improvement, but beyond this to within seven miles of Kelat, it is quite sterile, clothed like the rest of these countries, with dry looking camel shrubs. This, I believe, is the highest point of the plains of Beloochistan, and from it, the valleys slope away to the northward, or southward. The last seven miles of this route, lies through amongst low hills, at the extremity of which, there is a sort of pass, opening into the small, but apparently rich valley of Kelat.

This valley, two or three miles in breadth, coming from the north eastward, stretches past the south eastern face of the fortress, and is terminated a little to the southward by a low hilly ridge ; or rather, we might say, the river or stream which supplies the valley, here, turns abruptly down a deep gorge to the south eastward.

From Kelat, ascending over these strong heights to the southward, three or four miles, we come upon an immense arid plain from six to eight or ten miles in breadth ; sloping away to the southward, and to the eastward ; abruptly bounded by high barren mountains. This plain is covered with the common camel shrubs, but except at the resting places, Rodinjo and Soormasing, it is destitute of water as far as

"Sohrab." Here however, it is again found in running streams, or artificial water courses.

Leaving this plain, which is still seen stretching away to the southward, we turned the eastern range of mountains, down into the upper part of the Gundava pass, twelve miles. The Gundava pass, like the Bolan, is merely the bed of a mountain torrent, which arising from amongst the hills to the south eastward of Kelat, descends eastward through three mountain ridges, piled, as it were, one against the other, and opens into Cutch Gundava, between Kotra and Jull. The distance through, is greatly increased, by its zigzag direction, its course closely resembling the letter, "Z."

This pass, though confined, and to infantry tedious from the frequent crossing of the stream, is by no means impracticable for an army, even upward. Water is plentiful every where, and there is a good deal of long grass, tamarisk and other jungle, with, here and there, patches of cultivation, particularly towards the lower parts of it. A few soldiers, of course, could defend it in many places; it is so narrow, and with the rocks or mountains rising perpendicularly some hundreds of feet; but as for the natives, they might soon be out flanked and driven from their position, before the body of the force entered. As far, as the road, and ascent, however, are concerned, it is by no means so practicable a route as the Bolan, exclusive of its greater length.

On this route from Kwettah, supplies might be expected at Moostong, Moonguhar, Kelat and Sohrab; but no where else, in any quantity. Even forage would be scarce, under any circumstances, except for camels.

Kwettah, we have said, is six thousand feet above the level of the sea, Kelat eight thousand, and Cutch Gundava one to two thousand. The temperature of November with us, therefore varied greatly. At Kwettah, Thermometer was 16° or 18°, at sunrise before we left; at Kelat, 14°; and one or two days at the latter, the south eastern mountains were covered with snow. Whereas, in the lower parts of the Gundava pass, and at Kotra, we had altogether an Indian climate. Thermometer's highest diurnal range from 1st to 24th, 65° to 80°; lowest at 6 A. M. 14° to 38°, and highest from 25th to 30th, 76° to 86°; lowest at 6 A. M. 30° to 41°. At Kotra 86° to 96°; and 50° to 60°. — No rain or snow in camp, or even, on the plain.

At Kotra, we remained till the 10th of December, when having detached on, the two guns of the Bombay Horse Artillery, to Sukkur, General Willshire with the Queen's and 17th, marched direct upon

Larkhanu, retracing nearly, our steps of the preceding year. Halted one day at Ketchee, on the borders of the desert, where we were overtaken by the "Kafila" with supplies and sick carriage, sent up from Sukkur. The following evening, 14th, we marched half way across the desert, and pitched, having sent on plenty of water upon camels, and next day reached Bahram, on the opposite or Scinde side. This time, we found the distance across, only twenty eight miles, having kept the direct course, and by making two marches, felt it no more than ordinary marching.

At Bahram, we found water both scant and muddy; moved on the following day, and reached Larkhanu, on the 18th, where we encamped on some dusty ground, close to a large square mud fort; to the west of the village or town.

On the 29th, Head Quarters and 17th, moved back upon Sukkur; and on the 28th, the Queen's Royal marched to Thuggur bunder, on the Indus, twelve miles, through dusty jungles, and pitched half a mile from the river, upon an open space amongst corn fields and cotton grounds, surrounded by thick tamarisk and other jungles.

Throughout December, the weather was quite dry; warm during the day, but some times very cold in the night. Thermometer's highest diurnal range, 70°, to 96°; this includes the last five or six days, in the pass; lowest at 7 A. M. 40° to 60°. Embarked at Thuggur bunder, on the 12th January, in river boats sent down from Bukkur, and reached Tatta bunder, four miles east of that city, on the 21st.

On this interesting, and very picturesque voyage, down the Indus, the fleet breaking off from the bank every morning about 7 o'clock, descended in close body, chiefly by the strength of the current, except at the different turns of the river, where all oars, were at work to keep the boats clear of the bank; along which the stream frequently runs with great force, rapidly undermining it, whilst the parts above, clothed with tamarisk and other jungle and trees, rolls down continually, sometimes with considerable danger to boats.

The banks of the Indus, we have elsewhere said, present every where a clean, light coloured muddy surface; some are newly formed, a year old or so, and quite soft; others two or three perhaps, hard and covered with young tamarisk; whilst others again, judging from the stately trees round the half swept away villages, must have stood for ages. The river, however, acknowledges little distinction: — all are more or less involved in the general wreck; and as one bank falls, another, rises, to share the same fate, at the whim of the stream.

These banks are of various heights, but we were scarcely ever at a loss, for a place to hook on, when required. This we generally did at 4 or 5 P. M., to enable the men to cook on shore, there being no room in the boats; — sometimes we did earlier than this. For when it blows fresh, the labour with the oars, becomes so continuous, that the boatmen, very generally, make for the first low bank.

The average rate of the current at that season, is, I believe, about four miles an hour.

On this voyage, we had good opportunities for observing the manner of raising the water for irrigation, and for comparing the two sides of the river. On the Hydrabad side, I once counted sixteen or eighteen large Persian wheels at work, within the distance of a quarter of a mile.

At Tatta bunder, the carriage for the regiment not having arrived, we encamped upon the dusty bank, close to the river. Marched however, on the 26th and reached Karachee, sixty-four miles, on the 31st; there we pitched upon hard dusty ground, near some low stony hills, a mile or so N. E. of the lines of H. M.'s 40th Regiment. No transport had yet been heard of, for the regiment.

During January, the weather continued dry and tolerably cool, till the 21st at Tatta, when we had very heavy rain for two days, inundating many of the tents, and again on the 27th, on route to Karachee, from 9 P. M. till noon. After that, however, it was dry and warm. On the 6th of February I was moved from medical charge of the Queen's Royal, to that of the 17th, then on its way to Tatta. On my return to Karachee with the 17th, on the 25th of February, I found part of the Queen's still there; the hot wheather fast setting in, and they in the prospect of a two hundred and twenty mile march to Deesa. The last of them, did not leave Karachee till the 5th March; the Regiment reached Deesa on the 4th of April. Total distance marched by the Queen's Royal from the 31st of March 1839, to the 4th of April 1840, being one year and five days, exclusive of river and sea voyages, one thousand six hundred and seventy miles; or from the 26th of December 1838, being one year, three months and five days, two thousand and thirty-nine miles.

Barracks. No house or other building, has been occupied during the year, either as a regimental hospital or barrack. The tents were plain made, that is, without windows, or other means of ventilation, except the doors, with single walls and double fly; their dimensions were twelve feet square, and six in height of walls. To each were allowed sixteen or eighteen men, but these were seldom

perhaps, all in at once. The sides were generally kept open during the day, and when for any time stationary, the walls taken down occasionally and the tents cleaned out. The Hospital tents were of the same description, but double poled, and issued nearly in the same proportion; when necessary, however, additional were obtained from the companies. The ground of the hospital, was also frequently changed, shifted backwards and forwards, and particularly at Kelat, when filled with wounded.

On the expedition into Beloochistan in November, the outer flies were all left behind, for want of carriage, and we did not get them again, till about to embark at Thuggur bunder, towards the middle of January. In the boats down the Indus, the tents were made use of as awnings, side walls, &c. to keep out the sun, during the day and the cold damp air in the night.

Rations and Diet. From the nature of the service engaged in during the year, the scarcity of carriage, and the thinly peopled countries, or deserts, in which we were campaigning, the men were very generally on under rations, particularly of bread, flour, and rice, during the months of April, May June, and July, that is, till we reached Cabool; and again in October, on our return over the mountains to Kwettah, and in November, except the few days at Kelat, till we met the supplies from Shikarpoor, at the foot of the Gundava pass. Fresh vegetables of any kind, were seldom seen the first eight months, except at Cabool, Ghuznee and Khandár.

When stationary, the meals were at the usual hour, that is, breakfast at 8 or 9 A. M. and dinner at 2 P. M. but when marching, of course, they were extremely irregular, and sometimes from the scarcity of firewood, or its late issue, there were no regular meals. Upon the whole, we may say, during a great part of the year, the diet was neither plentiful nor wholesome. In addition to the badly cleaned flour, of which they had to make their bread; the great proportion of animal food (very good, grass fed, fresh mutton, chiefly), coupled with the want of fresh vegetables, was objectionable, and the effects were beginning to display themselves on our approach to Ghuznee, both in the nature of the bowel-complaints then prevalent, and in dry scurvy; but, which an abundant supply of fruit, and a very good vegetable (beet-root) obtained there, happily put a stop to. Nevertheless, the rations were the best, the country itself could afford, and the rate of pay would admit.

No spirits were issued on a hundred and seven days, and one dram, only, a great part of the rest of the year. The longest periods

without altogether, were from the 8th, of July till the 10th, of September, and from the 24th, of October to the 2nd, December. From this period, the 2nd, December, the men had full rations; viz. fresh meat 1½ lb. rice 8 oz ; bread biscuit 12 oz : spirits 2 drams. No salt provisions except perhaps a few days at Karachee.

Duty and Employment. The whole of this year, having been spent in the field, under a variety of climates and other contingencies it would be difficult, to award to any one set of causes, its due share in the deterioration of the health of the regiment. But that the duties and employments, to wit, night marching with the loss of sleep; or sometimes night and day marching, with scarcely a halt for weeks; rear, baggage and camel-grazing guards, did very materially contribute thereto, in the hot weather at least, there cannot be a doubt : particularly with regard to the diseases of the brain, stomach and bowels. It is curious, perhaps, that we suffered so little from the former, when we take into account, the nature of the duties, and the high range of the thermometer. We may remark, however, that on the camel-grazing guards, the men were in white jackets, and forage caps.

Internal Economy. The facilities for obtaining spirits, were so limited, during the greater part of the campaign, that it will scarcely be necessary to say any thing on this head. There have, however, been fifteen convictions under drunkenness; the greater number, of course, during the last three months, and three men have suffered corporeal punishment; two of these for disgraceful conduct, and one for insubordination. The total convictions during the year amount to 30, of which have been sentenced to imprisonment 21, and to forfeiture of pay 14. All these last, have been for drunkenness.

Average Strength. The average strength of the regiment with head quarters, including a detachment of 50 sick and weakly men kept at Bukkur in March 1839, and of a similar detachment of the same strength, left at Kwettah in the beginning of November, has been for the year ending 31st March 1840, 518. The greatest strength (detachments included) has been 569, and the least, 433.

The total number of admissions, *of those men who were in Scinde and Affghanistan*, amount to 1,336, for the year, and the deaths to 82, exclusive of 22, who died out of Hospital. Of these 22, 18 were killed in action, 3 were murdered by robbers, and one died suddenly of pulmonary apoplexy. Of the 82 under hospital treatment, 13

died of their wounds at Kelat, and 1 at Ghuznee, within the first eighteen hours, and afterwards 5 of the Kelat wounded, 2 of the Ghuznee; the rest under this head (wounds and injuries) died of other diseases unconnected with their wounds. One of cholera, I believe, on route to Shikarpoor with the detachment of sick and wounded men, in November; and of whose deaths, no regular return was ever received. From the scarcity of Medical Officers, these men passed through the hands of two or three, on that short march.

Of fever, 10 died of the "Pleuro-pneumonic," in Cutch Gundava, and Scinde, in December and January; and 4 of the Remitting complicated with dysentery and liver, in April and May, on the march to and at Khandár, one of them left behind at Kwettah. Of bowel complaints (diarrhœa and dysentery) 2 died at Khandár in May and June; 2 in July, on march to, and at the Ghuznee; 1, at Cabool; 3 on our return, crossing the mountains to Kwettah; 1, at Kelat, whom we left behind for want of carriage; 1 on the Indus; and 1 on route to Deesa; making in all, with head quarters 11. Besides these, 1 died at Khandár, of phrenitis; 1 of cardiac disease; at Ghuznee, 1 of liver; and 1 of lumbar abcess; 1 of pneumonia near Kwettah; 1 at Kelat; and 1 in the pass; and 1 of some other disease, on route to Deesa; making in all, deaths with head quarters under hospital treatment, 46. Of these were wounds, 14; disease, 34. Died away from head quarters; cholera, 20 or upwards?" coup-de soleil, 8; bowel complaints with detachment from Kwettah, 3. The other 3 having only private notes by me, I do not know, all, however, must have died away from head quarters.

The principal Diseases, by which this sickness and mortality have been occasioned, are these. With head quarters, affections of the stomach and bowels and an epidemic pleuro-pneumonic fever. With detachments away from head quarters, but in Scinde or Affghanistan, cholera and coup-de soleil. At Kotra, in Cutch Gundava, in the end of March, the diarrhœa from which we had been suffering in Scinde, became very rare, but it again, increased on the march to Dadur, in the beginning of April, and particularly afterwards from Dadur to Khandár.

Immediately, after we left Kotra, also, a low fever chiefly of the remitting type, but occasionally also of the intermitting, began to be prevalent, becoming more severe and frequent during the halt at Dadur. In the pass, this fever became complicated, in many instances, with the bowel complaint; the latter in these, taking on ultimately a dysenteric character, and also, sometimes with hepatic abscess. One

of these last proved fatal at Kwettah, amongst those men, whom we left behind for want of sick carriage. One fever case, also complicated with dysentery, proved fatal in the Bolan, and another at the foot of the Kojeh pass, but in neither of these, from the nature of the service, could a post mortem examination be made.

The worst fevers, we suppose, were contracted in the Bolan and Kojeh passes. Abundant sources of malaria, are to be found in both; and in addition, at that time, the air was quite contaminated with the effluvia from putrifying animals — men, camels, and horses: indeed, the stench was often quite sickening.

Very possibly, the diarrhœa may have been increased by similiar causes. The diarrhœa usually commenced in the night, with frequent watery purging, without tenesmus or appreciable pyrexia. In some, however, it was accompanied with frothiness and whiteness of the tongue, and some heat of skin; occasionally, with nausea or even vomiting, but these were remarked more especially, as we approached Khandár. In a few, here also, there was tenesmus with scanty evacuations, occasionally, but very seldom, mixed with blood. Towards convalescence the motions were often dark coloured and acrid, but this last character, occasionally, also accompanied the other stages of the disease.

Speaking generally, we would say, the disease was ushered in by a feeling of fulness or distension, with griping, followed in most instances by sudden uncontroulable calls to stool; in some however preceded for a day or two, by unusually light coloured motions, tending to laxness. During the next stage, as consistence became restored, the motions were again light coloured; or as they expressed it, loose and like that of a child; then dark coloured, and bilious; but convalescence often took place, without this appearance.

The gripings and purgings were always, greatly aggravated in the cold of the morning. Indeed, in addition to the numerous admissions with this disease during the month, it was no unusual thing, between Kwettah and Khandár, to see a fourth, or even a third, fall out to the rear, during the first halt. Many suffered very much who did not come to hospital; or if they did, not for many days after.

The fever was often preceded by the diarrhœa for some days, and indeed, I think, in all the bad cases. This fever when so complicated, was of a well marked remitting type, and towards the latter stages, the face assumed very much the appearence of the native, in sickness. The tongue in the bad cases, was smooth or polished, and of a pale brown colour in the centre, but moist and frothy at the edges. Those who recovered, had a scabby eruption about the lips: indeed

this and the peculiar hue of the countenance, were very characteristic. This appearance of the tongue, was sometimes observed in those, who never had the diarrhœa. In all the fatal cases, the purgings continued to the end; nevertheless, they seemed rather to sink from the fever. In the last case, death was preceded by delirium, and a mucous rale with a degree of snoring, in the left chest anteriorly. Both died on the 9th, day, in hospital, as did also the next, some days after : this last, as we were now halted at Khandár, I had an opportunity of examining. The mucous membrane of the bowels was of a continuous dark red colour throughout, with here and there specks of incipient ulceration, the size of pin heads, pretty regularly scattered over a portion near the caput cœcum. The liver was of a very pale colour.*

Treatment. With regard to this ; in the diarrhœa we found full doses of calomel and opium (20 grs. of the former and 2 of the latter) for the first few days, followed by epsom salts, answer very well (castor oil from its bulk, &c. we had not) ; then, hyd. c. creta and dover's powder, with an occasional dose of magnesia and rhuburb.

When tenesmus was present, we always commenced with a moderate bleeding, and from its effects, were induced to have recourse to it latterly, even where there was no tenesmus, and particularly, as our medicine chest began to get low.† The fever was treated upon similar principles, only instead of the hyd. c. creta, and dover's powder, after the first two days or so, calomel and opium and saline mixture during the paroxysms. In the remissions, quinine even from the earliest period, not waiting for a perfect remission, and this seemingly with the best effects. Sometimes in the very bad cases, we mixed the quinine with the hyd. c. creta, or gave quinine and opium. This plan of beginning as early as possible with the quinine, in remitting fever, I have been led into, gradually, for some years back.

Causes. With regard to the causes of the diarrhœa, a great variety of opinions were entertained ; but, these, we consider, were

* Towards the end of the campaign when these Khandár bowel complaints terminated fatally by chronic dysentery, there was often little ulceration, but only a granular state of the lining membrane, like what occurs in chronic ophthalmia.

† From the scarcity of carriage, we had, in the first intance, on leaving Larkhanu, to take a limited supply, and particularly of bulky articles ; and in addition to our losses on the march, we supplied three companies of a Bengal Native Regiment left at Dadur without any, and the Irregular Horse. The great run, also, upon our calomel, from the prevalence of one class of disease, tended to the same result.

the essential, the great diurnal variations of temperature with a high range of the thermometer, acting upon bodies, possessing a peculiar predisposition, and these were rendered more efficient, by such causes as diminish the constitutional powers of resistance, to wit, fatigue from loss of sleep, continued marching and night duties, as out-lying picquets, &c. &c.

The heat of the day, keeping up a very free exhalation from the skin, we shall call the predisposing, and associate with it, fatigue and loss of sleep; the exciting, the cold chill of the morning, and with it, associate night duties. The cause will therefore resolve itself, into checked perspiration, in bodies possessing a peculiar predispostion; this predisposition, the effect of previous residence, in a tropical climate.

The fever first showed itself at Kotra, near the entrance of the Gundava pass, but from that period, continued to prevail more or less, though by no means in a severe form, with the exception of the few cases, which we suppose were contracted in the Bolan, and Kojeh passes. The first fatal case might be considered an exception, for though he died, the fourth day, in the Bolan, he was admitted at Dadur. Still we are not sure of that, for none, before the passes, presented similar symptoms.

Its cause was no doubt malaria, abundant sources of which existed in both, the Bolan, and Kojeh; also at Kotra and Dadur for the milder fevers, and agues, in the numerous water courses, which intersected the encampment. At Dadur, there was, also, a sort of marshy place, immediately to the right of our camp, and at Dadur were comparatively the greatest number of admissions. Total admitted in April, Febris Remittens, 57; Diarrhœa, 150; all other diseases, 31. Total died in April, Febris Remittens, complicat, with head quarters, 2; at Kwettah 1.

At Khandár, in May, fevers of the intermitting and remitting types continued to prevail, particularly the former, and sub-acute gastro-enteritis or diarrhœa, but the last was by no means to the extent it did on the march. Two complicated fever cases proved fatal in the beginning of the month; the one has already been alluded to, the other was nineteen days in hospital, and in consequence the dysentery was more marked, but he had also abscess of the liver: the colon was extensively ulcerated. This man appears in the return to have died under dysentery, but his disease was originally of the same character as the others. Two cases also were followed, the one by anasarca, and the other by chronic visceral disease. All these were contracted previously to Khandár.

The majority of the Khandár admissions, were regular agues, chiefly of the tertian and quotidian types:—quotidian, that is fevers with daily paroxysms; they may have been double tertians, but there was in no instance doubling on the same day. The remittents also very generally terminated in intermittents. The diarrhœa as before, was preceded by dyspeptic symptoms; pain at the stomach, nausea, occasionally vomiting, fulness and distension after eating, and griping; in a few instances, these dyspeptic symptoms with costiveness, constituted the whole ailment. The evacuations on admission were generally white and frothy, like serum and mucus, with tenesmus often, or uneasy feeling of constant needing; at other times feculent and white, or of a very pale colour; sometimes towards convalescence, of a bright yellow.

The total number of admissions, for the month, were, Diarrhœa 70; Dysentery, 14; Febris Intermittens, 21; Remittens, 14; all other diseases, 21. Died, Febris remittens complicat. 2.

In June, the fevers became less frequent, and particularly the agues, but the gastro-enteritis continued. Dysentery however was more marked, and latterly gastro-duodenal symptoms with jaundice; in consequence, venesection and leeching were more freely had recourse to; and cupping over the epigastrium. In this month also, we had a few cases of cerebritis, one of which proved fatal by convulsions, and another ultimately terminated in mania. One man died also this month of dysentery; he was an old cachectic subject, in hospital with ulcerated sore throat, when attacked with dysentery. He was only brought on the campaign, because he belonged to the band, and had no military duty to do.

We had also a few cases of catarrhal opthalmia, and five or six of ecthyma luridum. Also one of disease of the heart; see cases. "Smith." Total admissions during the month (June), Phrenitis, 2; Diarrhœa, 70; Dysentery, 5; Enteritis (Gastro-duodenitis with jaundice) 4; all other diseases, 27. Died Phrenitis (Cerebritis,) 1; Dysentery, 1; Cardiac disease, 1.

In July, on the march to Ghuznee, the prevailing diseases were again of the gastro-enteric character, diarrhœa, dysentery and jaundice; the latter particularly in the beginning of the month, preceded by dyspeptic symptoms, and some degree of febrile excitement. Latterly also two cases of purpura (dry scurvy), and one or two near approaches to it; but this was soon put a stop to, by the beet-root, and fruit so plentiful at Ghuznee. Half a pound of grapes was allowed also in hospital as an extra, even in the bowel affections, where the least scorbutic tendency was displayed. Two died this month of

disease, both of dysentery, but both were admitted, the preceding month, at Khandár. Indeed, most of the admissions, dated their ailments to Khandár, or previously to that. After Ghuznee, bowel complaints were rare, and jaundice totally disappeared.

In the end of June, and beginning of July, we had also several cases of ulcer, consequent upon ecthyma, both amongst the officers and men, but these also by the end of the month, were all well. One man, in hospital all this month, admitted from imprisonment at Khandár, according to his statement, had been labouring more or less under the diarrhœa, ever since his arrival in Scinde, latterly accompanied with bleeding piles. He was taken in, with strong symptoms of reaction, simulating peritonitis, and other acute abdominal inflammations; but which, his vibrating pulse and pale exsanguious aspect sufficiently contradicted. Whilst the diarrhœa was restrained, and the acute tenderness relieved, by opium, with calomel and blue pill (calomel we had very little of, but blue pill we made from quick silver in the bazars), or injections of laudanum, &c. occasional cupping and fomentations; he was put upon a steady course of quinine and opium, with wine or spirits, as extras: (these articles we never were without in hospital). This man, Private Patrick Reagan, had not sufficiently recovered to accompany the regiment into Beloochistan in November, but whilst still under treatment, he volunteered, out of hospital, and was most active in the assault upon Ghuznee. Indeed, although we had upwards of seventy, chiefly bowel complaints, on our arrival before that fortress, only eighteen were in hospital on the morning of the assault.

Some of them died afterwards of chronic visceral disease, though we should say by no means in consequence: — possibly it did many of them good; the weather was fine, and they had no knapsacks to carry. One, however, who received two musket shots through his right thigh, one of them with fracture; on account of which, amputation was performed, possibly, did sink from previous debility.

Total admissions with Head Quarters in July, under gastro-enteric disease; Diarrhœa, 112; Dysentery, 9; Jaundice 8; Total deaths during the month, Dysentery, 2; killed in action, 3; died of wounds, 2; murdered, 2; total 9. No fever, to speak of, this month. One fell down hemiplegiac from "coup de soleil" below Kelat i Ghilgee, just as he came upon the ground, after a long march. A mussack of cold water was poured over his head, and sixteen ounces of blood were taken from his arm &c: he was quite well before we reached Ghuznee.

At the storming of Ghuznee on the 23rd, 2 men were killed in ac-

tion, and 28 were admitted into hospital, with wounds and contusions, exclusive of six officers. Of these, 17 were by musket or matchlock, and arrows, and 6 by sabre. The rest were contusions, or fractures by falling stones and timber in the gateway. Two died, one immediately after, from a very deep sabre or rather large Affghan knife cut across the face, with several other, about the extremities, one of which had nearly severed the arm. The other was the case of amputation already alluded to. A third died in the beginning of August, after we left: this was a shot in the Kelat style, a regular aim from behind a mud wall, a few paces distant, after the place was in our possession. The ball penetrated his breast-plate, and might have been supposed to have gone directly into the chest, had not an ecchymosis and crackling round the parietes to the scapula, led us to its site, where it was easily cut out. This man did well for several days, but died of an acute attack of that side of the chest; most probably a pleurisy from part of the breast-plate or other matters, having found their way into the cavity, as the sloughs separated.

An old, and for some years weakly soldier, who got into a room amongst a host of the enemy, who closed the door immediately upon him, was regularly chopped up. He said, seven or eight were cutting at him on the floor, when his comrades burst open the door, and rescued him. He had several deep cuts over the right parietal and temporal bones, cutting the scalp into pieces; several over the right shoulder nearly laying open the joint; and one across the right arm dividing the humerus, besides several other minor cuts about the extremities, yet, he recovered, under the care of Staff Sugeon Pinhey, H. C. service, in the fixed hospital at Ghuznee, without one bad symptom, or even febrile movement. Several slices came away from the mastoid process of the temporal bone before we left. The arm, however, from the extensive cuts about the shoulder, is nearly powerless.

A young soldier received a small matchlock shot in the left knee. The ball penetrated the centre of the patella, but its further course could not be traced without adding much to the danger. On consultation with Superintending Surgeon Kennedy, and other medical officers present, it was agreed, to try and save the limb. No great inflammation followed, but the leg is still little better than a burden: it may however yet improve. The ball would seem to be lodged, about the inner side of the head of the tibia.

Another man received a small matchlock shot on the left shoulder. He was carried, in the first instance, by mistake, to the Bengal field hospital. On his arrival at the regimental, the following day, one opening only presented itself at the point of the

shoulder, the ball having passed seemingly directly inwards, under the acromion. The man himself affirmed it was in his chest, yet he recovered with only a stiff joint, inability to raise the arm from the side; he could swing it backwards and forwards well enough. He died of some other disease on route to Deesa, when the ball was found, by Dr. Jopp, imbedded in the long head of the biceps.

There were two or three other severe wounds at Ghuznee, but of less interest, and therefore, we shall not enlarge upon them here.

From the time we left Ghuznee, till we returned in the end of September, a period of two months, the only diseases of moment, in addition to readmissions with bowel complaint, were a few cases of ague at Cabool, in both encampments, chiefly at the new and full moon, and a few of mild acute dysentery, in the cold damp weather; also, in September, a few of acute rheumatism.

Admitted with Head Quarters, in August, Diarrhœa, 36; Dysenteria chronic, (changed diseases from Diarrhoea) 3; Dysenteria, 3; Febris Intermittens, 7.

Died; Dysenteria chronic. 1. Also at Ghuznee, of the sick and wounded left there, wounds 1; lumbar abscess, 1; and 1 of Dysentery, brought on to the return of this month, having died on the 31st, of the preceding, after we left.

In September, admitted Febris Intermittens, 20; Remittens, 4; Dysentery (fresh cases), 3; Diarrhœa, 15; Rheumatism, 7; Cholera 1; Catarrh, 3. Died, none in hospital with Head Quarters, but one fell down dead of pulmonary apoplexy on the 29th, seemingly, from the extreme cold; he had just been relieved off sentry. A large apoplectic engorgement was found in the upper and posterior portion of the left lower lobe, and the cavity of that side was also filled with blood; the pleura having given way at the same part. A few solitary tubercles were scattered throughout the lungs.*

The cholera case occured on the 18th, the first march from Cabool; but other corps had one or two, the previous day. One man also died at Ghuznee of liver, on the 22nd, of those, we left on the advance of the army upon Cabool.

Crossing the mountains to Kwettah in October, the chief admissions were agues and rheumatism, the former particularly during the eight days. Several were also admitted with sore feet, the boots or shoes of many of them, now scarcely hanging together. Never was the regiment more healthy, and every one seemed to acquire new

* Connected with the diseases of this part, we may mention the frequency of opthalmia amongst the Natives of Cabool, and its vicinity, as evinced by the numerous chronic cases, with total or partial blindness, seen there.

vigour, except those with chronic bowel complaint: they on the contrary, fell away rapidly. Only one case of pneumonia, I met with crossing the mountains, and that was in a Native (Portuguese) writer, he recovered. But one occurred in the regiment on the 26th, the day we descended into the valley of the Lorah, and proved fatal on the 31st. Admitted, Febris Intermittens, 21; Rheumatism, 4; Diarrhœa, 20; Pneumonia, 1; Died, Dysenteria chronic. 3; Pneumonia, 1.

From Kwettah till we entered the Gundava pass, the only admissions with disease of moment were two of pneumonia, one of chronic dysentery, and a few of mild intermitting fever. The first three all proved fatal, one of pneumonia on the 13th, one on the 27th and the chronic dysentery at Kelat, sometime after we left. We had only four in hospital on the morning of the 13th. The wounds that day, however, were both numerous and severe; and the want of medical officers was much felt: there was not one for each corps, and no Medical Staff.*

The Queen's Royal had 47 wounded, admitted into hospital, exclusive of 5 officers, and those who died on the field before the tents were pitched: 39 of these were by gun shot, and 8 by sabre cuts. Only one of these last proved fatal. This man lived three days, although an immense wedge was cut out of the occiput including part of the brain. It was a horrid looking wound, and what rendered it still more so, the man stood up and answered questions, rationally, betraying only a little wildness of countenance. He soon became comatose, however, and remained so till he died.

The gun shot, were of the most severe description, as is evident from the proportion of killed to wounded, and the proportion would have been still greater, but for the small size of the matchlock balls, scarcely larger than that of a small pistol. It was not fighting at a distance, and at random, but steady aims from a rest; and in the town and citadel, out at a door, or window, round a corner, or over a wall, a few paces distant. 6 were of the head; and of these, 5 were dead within a few hours. Two when raising their heads quietly over a wall to shoot, a very correct marksman, were themselves shot right through the skull, the moment their foreheads appeared above the parapet. In the one of the head cases, who escaped, the ball entered the left cheek, and came out under the ear.

18 were of the chest, exclusive of one Officer. Of these 10 died by the next morning, and one a few days after of pneumo-

* The Queen's and 17th had each lost a Medical Officer in the campaign. And on this expedition I had Medical charge also of the detachments of the Bombay Horse Artillery.

nia of the wounded side. One was over the neck just over the sternum, passing obliquely across the large vessels, from about two inches; this was one of the first wounded on the face of the hill; the ball, a sort of large slug about an inch long, and possibly fired from a wall piece, was cut out immediately, but a day or two after considerable hœmorrhage occurred from the knife wound in the night. It seemed to be from a very small vessel, and was stopped easily by styptics and pressure, but it broke out again, two mornings after, to a more alarming extent; the man was faint, and the vessel could not be seen; we therefore sewed the lips of the cut together, by the uninterrupted suture, which perfectly restrained it. 9 exclusive of one Officer, were of the abdomen or pelvis; of these six were dead by next morning. Most of them died in great agony.

10 and one Officer were of the thigh; one of these only proved fatal. The ball entered in front, just above the knee, and passed out at the ham. Next day, there was considerable heat and swelling about the knee, but the foot and leg were quite cold. He became completely jaundiced, but no signs of mortification of the foot or toes had appeared when we left him on the morning of the 21st. He died on the 28th, but in what way we never heard.

The other 11, besides one Officer, were of the arms, legs, or hands. (one officer and several of the men, had flesh wounds of the extremities, in addition to their other wounds, these we have not reckoned); one was a severe contusion from a large stone thrown down upon him from the citadel. Of these, proved fatal, one; it was a large jinjall shot smashing both the bones of the leg, and rendering it a vast ecchymosed mass. The man was very low with a weak pulse, and sank without any effort at reaction: there was no hœmorrhage. Many of the other wounds perhaps, present points of interest, particularly those of the chest, but with them, we shall not further lengthen this already unwieldy report.

As the diseases of the Gundava pass were intimately connected with a very fatal epidemic, which followed us throughout the rest of the campaign, we shall pass on, leaving them to the next section.

Of the principal classes of disease, were admitted in November, Pneumonia, 2; Febris Intermittens, 10; Dysenteria Chronica, 7; Diarrhœa, 9. Died with Head Quarters; Pneumonia, 2; Wounds in hospital, 9; killed in action, 15.

In December admitted, Febris Remittens, 23; Intermittens, 7; Dysentery, 3; Diarrhœa, 3. Died with Head Quarters; Febris Remittens, 8; of these one appears in the return under Enteritis (Peritonitis) and one under Pneumonia.

In January, admitted, Febris Remittens, 14; Intermittens, 7; Diarrhœa, 10; Popliteal-aneurism, 1; all other diseases, 16. Died, Febris Remittens, 2; Dysenteria Chronica, 1. Of the men left at Kelat; from the 21st of November till they rejoined us at Thuggur bunder, died, wounds 2; Dysentery, 1. Of the men left at Kwettah on the 3rd of November to go down the Bolan, till they rejoined us at Larkhanu, 19. 16 of these at least of cholera, but in the return they appear under the diseases for which they were detached, viz., Dysenteria Chronica, 5; Diarrhœa, 6; Rheumatism, 2; Febris Intermittens, 2; Dyspepsia, 4; Catarrh, 1; Paralysis, 1; Vulnus Sclopitorum, 1.

Epidemics. In this section, we shall only notice the Pleuro-pneumonic-fever, which commenced in the Gundava pass, and followed us throughout the rest of the campaign, engrossing every other. We do not consider it, however, as a distinct epidemic fever, the complication only rendering it so; for all fevers, with one or perhaps two exceptions, whether intermitting or remitting, from the period of our arrival at Kotra, till we embarked at Karachee, were more or less complicated with the pulmonary affection.

The pulmonary tendency first evinced itself at Ghuznee, in the case of apoplexy already noticed from the extreme cold of the morning; in lungs predisposed by the irritation of solitary tubercles scattered through their substance. Secondly, in the case of pneumonia, the day we left the mountains, between Ghuznee and Kwettah, and afterwards in the two between Kwettah and the Pass.

Occasionally also we had mild intermitting and remitting fevers all the way from Cabool. On the 27th of November, four days after we entered the Gundava pass, one man was admitted with ague, and discharged well on the 6th of the following month, without betraying any pectoral ailment. On the 28th, a second fever case was admitted, just as we were leaving the ground. That night our camp was very confined, part of the force on one side of the stream, and part on the other; and this man had been on guard, and possibly got his feet wet both in crossing and recrossing (as far as I recollect, he had waded across, for the stream was rather deep.) By the time we got to the encampment, about the middle of the day, acute peritonitis had supervened, and in consequence, notwithstanding, both the fever and pain shewed marked remissions, we looked upon the local affection as the chief disease, and therefore entered it "enteritis" (peritonitis) in the books, or at least soon changed it to that. — It proved fatal on the first of December, when the abdominal cavity was found,

filled with semi-purulent matter, and flocculent false membranes; insomuch, that I suspected it must have arisen from perforation of the bowel. Stating this my opinion, the same day, in a letter addressed to the Deputy Inspector General, though on the most minute examination which circumstances would permit, I had not been able to prove it.

On the 30th, a third fever case was admitted, at first without any pectoral symptoms, but followed two days after by quick breathing, unequal respiration, and slight cough; afterwards by crepitating rales, bronchial respiration, &c. It proved fatal on the 6th. This man was admitted under fever, but from the symptoms and physical signs latterly, together with the pleuro-pneumonic appearances on dissection, I changed it to Pneumonia; thinking I had overlooked the pulmonary signs in the first instance: for at that period, a great part of the day being spent in marching, there was little time for minute investigation. From the frequency we had to cross the stream, it was after 12 or 1 o'clock before the regiment got up to its ground, and then the tents were to be pitched, &c. I did not apply the stethoscope the first day till led to it by the quick breathing, and then, as above stated, the only thing remarkable was the difference of the respiratory murmur on one side, compared to that of the other; the cough he only admitted on being questioned relative thereto. On the 2nd of December, 5 were admitted with ague, and on the 4th, 1. All these recovered without any marked pectoral ailment: indeed, any that would have been noticed, but for the signs which were now developing themselves in the other case. They were chiefly pain about the clavicle; slight inequality of respiratory murmur, and cough, supposed to be catarrhal only.

On the 6th, two were admitted with Dysentery; on the 10th, one of these was seized with the fever, and died on the 17th; the other was seized on the 14th but recovered. On the 6th also, 3 were admitted with the fever, two of which proved fatal; the one on the 10th, the other on the 12th. On the 8th, one was admitted with scarcely any pectoral symptom, but complained of violent headache. He was discharged well on the 18th. On the 10th, one which proved fatal on the 14th. On the 12th, one which proved fatal on the 13th. This case was accompanied with cold skin, and almost imperceptible pulse, and proved fatal without any effort at reaction. On the 14th, on the border of the desert, six were admitted, but the disease was now evidently changing. On the 15th, 3; and on the 18th, 2. One on the 19th, and one on the 20th. From the 14th, the fever partook more of an intermitting character, till the 21st when it became clear-

ly so. From this period, we may consider the disease to have ceased as an epidemic, though it continued as an endemic to the end of the campaign, insomuch at least that every fever had this complication.

It is here worthy of remark, that the preceding year, from the time we landed in Scinde on the 30th of November, till we entered the Bolan pass, a period of four months and a half, at the same season of the year, though we had fevers both of the remitting and intermitting types, we had no pectoral complication whatever, nor had we a fatal case of fever, or indeed of any disease, with head quarters, except one of cholera, the day before we reached Tátta.

Connected with the history also, perhaps, the following is worthy of note. A few days after I joined the 17th Regiment, on route to Karachee in February, a patient, in hospital with this disease, died about noon. Immediately on seeing which, another in the same tent, a convalescent from bowel complaint, and I think, to have returned to his duty that evening, was seized with an agony ; — cold skin, almost imperceptible pulse, and writhing and tossing of the body, insomuch, that he was supposed to have fits. It was with difficulty I could apply the stethoscope, when I found the low, almost lost, respiratory murmur of the right side, and the full semi-puerile of the left. Taking into consideration the two former cases, already alluded to, I put down on a slate, to Dr. Thomson, junior, who saw him with me, and who had also recently joined the regiment; "Diagnosis," Pleuro-pneumonic fever ; Pleurisy, right side, recent" "Prognosis; death before midnight." We exhibited stimulants and antispasmodics ; applied a mustard poultice, or blister to the neck, &c., but he died soon after 6 P. M. ; exhibiting, on the post mortem examination, only a couple of ounces of serum in the right pleural cavity, and two or three stringy adhesions towards the hepatic surface, of perhaps older standing. From a pain or tenderness in right side, evinced some days previously, supposed to have been hepatic, it is possible, these adhesions were then forming. The liver, and every other organ, was perfectly healthy.

A case something similar to this occurred in the Queen's Royal. On the 14th of December, a patient with dysentery, for want of room, was placed in the same tent with others with the fever. He also was a convalescent, but at the evening visit, stated to me, that he felt very ill. Thinking it was from dread, and fearing that to apply the stethoscope, would alarm him still more, I tried to persuade him out of it, and ordered him a dose of calomel and antimonial powder; (as far as I recollect, he had a little fever). Next day he

made a similar statement, and on applying the stethoscope, the crepitating rales were audible over the left chest anteriorly. I had him therefore removed to another tent, where the wounded were, and quinine exhibited for a few days, alternately with a solution of tartar emetic. He was long in hospital before the rales altogether ceased, but he ultimately recovered, and went with the regiment to Deesa.

Two or three others, when the disease was at its acme, evinced great alarm on admission, declaring it was of no use, they must die, and got their wills immediately made out; and I believe, too, all these actually did die.

Symptoms. Here, we shall exclude all those, which occurred previous to the 6th of December, the day the disease may be said to have assumed its characteristic marks. From this period, the disease very generally set in, with shivering and other acute febrile symptoms, together with pain and tenderness of one side of the chest, cough and scanty, generally, purely sanguineous expectoration; particularly from the 6th to the 14th of December, when the disease was at its acme. Sometimes, the expectoration was frothy, and sometimes, there was none at all; no cough and no tenderness; only, once did I observe the expectoration tenacious and rusty, but it lost this character again in a day or two, and assumed that of bronchitis. It proved fatal on the 8th day of the disease; purulent imfiltration was commencing in the right lung: — this was the only one, where the pneumonia had advanced farther than hepatization.

The pain in the side and fever were generally reported to have commenced simultaneously, but cough when present, was never mentioned till asked for. In several of the latter cases, the fever and pain had come on, at some period of the day, and gone off again, so as to permit the individual to continue with the column, one, two, or even three, marches. They stated, that the fever had gone off entirely, but not altogether so, the pain; yet, that they had in the intervals, felt well in health, and their appetite as usual. In hospital also, the disease from the first had a remitting character, and particularly so after the 12th, till latterly it became clearly intermitting, that is, the fever, for the pain only remitted.

The tongue was clean throughout, generally, and particularly in the last cases; in one or two the lips swelled very much, and became covered with vesicles; thirst was much complained of in the exacerbations; the bowels were regular or relaxed, and the pulse quick and small, or of moderate force. The tolerance of venesection scarcely exceeded that of health: some indeed, became faint on the

loss of a few ounces of blood in the erect posture; others stood 16 to 24 ounces; and one or two, even, 30 ounces, or nearly that, before evincing any tendency to deliquium. In no instance was the blood cupped, and in most, it was scarcely separated from the vessel; sometimes a buffy film was observed after the 2nd or 3rd day, but generally it presented a bright red appearance.

Physical signs. On admission, by the stethoscope, the respiratory murmur on one side, and in at least two cases of three, it was the right side, was found sharp and, distressed, or low compared to that of the opposite, which was soft and more or less full; no rales were audible, or marked bronchial or puerile respiration for a day or two: often not at all. Crepitating rales, or bronchial respiration, were the harbingers of death during the acme of the disease. Not one recovered, amongst the first cases, though two or three did afterwards, when the fever had become intermitting. Percussion could seldom be employed, owing to the acute tenderness of the side.

Appearances on dissection. These presented generally more of a pleuritic than pneumonic character, in adhesions, false membranes and semi-purulent effusions or empyemata, with only very partial hepatizations of a portion of the lungs, towards the pleuritic surface. Sometimes, however, the pneumonic predominated: a lobe (generally a lower) or the whole of one lobe, and part of another, were found congested, or hepatized. In two, attended with cold skin, weak or imperceptible pulse from the beginning, and which proved fatal in from 20 to 30 hours, the whole of the lungs on one side, were a mere congested mass. Only, in one, did we find the disease advanced to purulent infiltration; but semi-purulent, or purulent empyema was very frequent. Two or three, however, from circumstances connected with continued marching, or sailing down the Indus, and scarcity of sick carriage, we were not able to examine.

Treatment. This, I must confess, was at first wavering, not knowing exactly what to think of the disease; and the continued marching prevented me being able to satisfy myself. In the Pass, I certainly treated them as remitting and intermitting fevers, with the exception perhaps of the peritonitis case, which was sometimes treated as a remitting fever, sometimes as an idiopathic peritonitis.

On the 6th of December, however, at Kotra, from the morbid appearances of the fatal case, and the marked pectoral symptoms (pain in the side and sanguineous expectoration) in those admitted that day,

I was induced to adopt another line of practice, and to treat them as idiopathic pleuro-pneumonia. That is, by free venesection, re-opening the vein immediately, where a tendency to syncope had been too early evinced, and repeating the operation according to circumstances; full doses of purgatives, followed by tartar emetic (2 grs. every two hours) ; calomel and antimony at bed time; tartar emetic ointment to the chest, &c. With what success the history will demonstrate, but these were the very worst cases, when the disease was at its acme.

It perhaps is curious, almost all these occurred in the grenadier company ; (as far I recollect, the first 5 or 6 fatal did) : — and it is farther remarkable, that the 17th Regiment marching with us, had few in comparison. Their total admissions with fever of all kinds, and pneumonia, during this month, December, only, amounted to 13; whereas, in the Queen's Royal, they amounted to 30. In making this comparison, it is necessary to conjoin fever and pneumonia, for in one regiment the greater number were admitted under pneumonia, and in the other under fever.

On the 13th, when halted at Ketchee on the borders of the desert, when the admissions were numerous, and the disease again becoming more markedly, remitting, together with the stethoscopic observations, we were then enabled to make on a large scale, we clearly perceived that the chief part of the disease, with which we had to contend, was the fever; and in consequence, immediately returned to the treatment by quinine, on the least remission ; preceding it, of course, by a moderate bleeding, which we repeated according to circumstances; and alternating it with tartar emetic, &c. in the exacerbations : but we had few cases that altogether resisted the quinine, for more than one or two paroxysms. The fatal case on the river, and the other at Tatta, might be considered exceptions, but scarcely so, when we take unto calculation the circumstances under which they were placed, sailing down the Indus; and the fatal case at Thuggur bunder, had neither paroxysm nor remission in hospital; or rather, this patient may be said to have died, in the cold stage of the first paroxysm, in hospital.

The fever checked within the first two or three paroxysms, we found no difficulty with the pleuro-pneumonia ; at least, as far as life was immediately concerned : not one as yet has died of the effects, even. And the three exceptions above noticed are the only fatal cases of those admitted from the 14th of December inclusive, till the regiment left Karachee in February, though these amounted to 21, in January alone. That the disease had become milder, is

true, only, as regards the fever. The 17th had only eleven during the same period, January; (9 of them in the books under pneumonia, and two under fever) and of those, no less than 5 proved fatal, or nearly 1 in 2, whereas in the Queen's, it was scarcely 1 in 10. In December, on the contrary, the 17th lost 4 in 13, (fever or pneumonia), and the Queen's, 8 in 30; the former being 1 in $3\frac{1}{3}$ and the latter 1 in $3\frac{3}{4}$.

And, it is to be remarked that in the Queen's, during the acme of the disease, under the pleuro-pneumonic treatment, we lost 5 in 8; and 2 in 2 of the mixed treatment; making in fact, all our losses that month but 1, the one at Thuggur bunder. They stand thus; Queen's Royal, December, admitted, Febris Remittens, 23; Intermittens, 7; Pneumonia, 0; Total 30. Died, Febris Remittens, 6; Pneumonia (admissions of November), 1; Peritonitis, 1; Total 8 or 1 in $3\frac{3}{4}$.

17th Regiment, Febris Remittens, 1; Con. Com. 4; Pneumonia, 8; Total, 13; Died, Pneumonia, 4; or 1 in $3\frac{1}{4}$.

In January, Queen's Royal, Febris Remittens, 14; Intermittens, 7; Total 21. Died, Febris Remittens, 2: Total, 2; or 1 in $10\frac{1}{10}$.

17th Regiment, Febris Con. Com. 3; Pneumonia, 9: Total 11; Died, Pneumonia, 5; Total, 5: 1 in $2\frac{1}{5}$.

At Larkhanu, then having medical charge of the general staff and details as well as the Queen's Royal, I had an opportunity of seeing a few cases of fever, in a detachment of the 1st (Native) Cavalry, which joined us at Kotra, but they were simple agues, and readily yielded to quinine. I saw also a Lascar with the pleuro-pneumonic fever, but the greater part of one side was hepatized on admission. He died the following day.

It is curious, I do not recollect a single case of this fever amongst the native followers; (I think, however, there was one.) Nor amongst the Officers; nor had there been, in the detachment of Horse Artillery, when they left us at Kotra, on the 9th of December.

Causes. From the history and most successful method of treatment, &c., it will be evident, we think, that the disease was simply the endemic fever of the Pass and Scinde, complicated with pleuro-pneumonia, from a predisposition given to the latter disease, by very recent previous residence in an extremely cold climate, with only the shelter of tents. In short, that this previous residence in an extremely cold climate, with a very rapid change into a hot, were the predisposing causes of the pleuro-pneumonia; and the endemic fever of the Pass and Scinde, the exciting; just in the same way,

as we have elsewhere shown * that previous residence in a hot climate, with a rapid change into a cold, predisposes to hepatitis and hepatic abscess; as occurred in the 2nd, or Queen's Royal Regiment in 1836 — 37, moving from Bombay to Belgaum; and in April 1839, in going from Cutch Gundava into Sewestan.

It is generally remarked, that regiments lose a number of men on changing stations; might not this, in some measure, be remedied by a better regulation of reliefs, in reference to climates, and seasons of the year? Poona to Belgaum, or vice versa, we think, might be made at any season, except during the hot winds of the former. But in moving from Bombay to Belgaum, or Bombay to Poona, some consideration ought to be given: — the period when the two climates, approximate nearest to each other, must be the best. July and January for Poona; and February or the beginning of March, perhaps, for Belgaum, after the cold easterly winds have ceased; or before these have commenced in November. Again for Karachee and Deesa, to leave Bombay in January, we think, would be best: — but these are meant only as hints; perhaps better seasons might still be found; or by making the reliefs between nearest similar climates.

The following cases will illustrate the disease.

CASE 1st. *Pleuro-Pneumonic Fever. Ketchee*, 13th December 1839. Private Alexander Miller, Ætat, 39; admitted at 11, P. M. with acute pyrexia and pain through his right chest, extending up to the point of shoulder, and preventing his breathing, he says, with slight cough and scanty sanguineous expectoration. Skin hot; tongue rather loaded; bowels regular; pulse 106, rather small and sharp; respiration confined and distressed in right chest anteriorly and posteriorly, full in left; acute tenderness of side; no rales. States, that yesterday on baggage guard, when within two miles of this camp, he was seized with shivering and pain in the side simultaneously; that the former continued a great part of the night, and was followed this morning by increased heat, slight cough and hœmoptysis. V. S. ad. deliquium (sitting up); calomel grs. x. c. pulv antimon, grs. x. et jalap comp. grs. xx. stat. Solut tartarizat (c. tart. antimon. grs. iv. et sulph. magnes ʒi. singulis libris) 2da q. q. hora, ʒii.

Ketchee, 14th. Became faint in the semi-erect posture at 30 ounces. Blood not cupped, and only a light trace of buffiness. Bowels moved five times freely. Pain in side no way alleviated, shivering returned at daylight, and now, 9 P. M. just going off; tongue furred; pulse 100, small, and rather weak; slight cough occasionally with scanty frothy expectoration, tinged with blood. Decubitus on left side. Contn. solut. tartarizat ut heri.

Bahram, 15th. 1 P. M. crossed the desert last evening and this morning. Had this morning at starting six grs. of quinine; no return of shivering; skin

* See Report for 1836 — 37, Volume 1st.

rather warm; tongue clean; pulse 84, more full; pain continues; resp. of right side not so full as left, but no rales. V. S. ad. ℥xii. sulph. quinin. grs. ii. 2da. q. q. hora.

16th. 11 A. M. marched 10 miles this morning. Bleeding yesterday omitted by mistake. Pain in the side was much increased in the evening, and he was then bled to 12 ounces with great relief; and had 10 grs. of calomel, with 10 of antimonial powder. Feels much better to-day, and respiration more low and soft, though still fullest on left side; pulse 84; bowels free. Contn. quinine, et solut. tartarizat. horis alternis.

17th. 12 noon; marched 10 miles, hot and feverish all night. Pain still continues except about the shoulders; skin hot; tongue clean; bowels free; pulse 96, small; lips much swelled, and covered with vesicles, filled with opaque lymph; respiration more calm and equal. Rept. solut. tartarizat. Ung. tart. antimon. P. D. Had six grains of quinine before starting.

18th. 1 P. M. a long march this morning, 13 miles. Pain in side continues, but not fixed as formerly; skin warm; pulse 104, small and weak. Contn. solut. tartarizat. et ung.

19th 7 P. M. halted at Larkhanu. Pain continues; cough troublesome in the night; skin cool; pulse 84; lips still swelled, large and blistered; bowels free. V. S. ad. ℥vi. Rept. quinin. et tart. antimon. horis alternis.

20th, halted, 7 P. M. pain more acute, and cough troublesome in the night, swelling of lips much reduced; skin cool; pulse 80. Contn. quinin. et tart. antimon.

21st, halted, Feels much better today; skin cool; pulse 72; respiration soft and calm. Contn.

23rd, no return of fever, still cough and pain in side. Contn. solut. tart.—Omitr. quinin. 30th, convalescent.

CASE 2nd. *Larkhanu*, 18th December 1839. 2 P. M. Private Samuel Wright, Ætat. 37. Just now admitted off camel (grazing) guard, with acute pain across his chest; dry teasing cough and pyrexia: states, that for the last three days, he has been seized about 3 P. M. with acute pain in his chest and fever, simultaneously; and that the former, though it has never entirely gone off, has always been greatly aggravated by the latter. Says they have come on earlier to day, and more violent in degree, skin hot, perspiring about the face. Countenance anxious and distressed; tongue clean; thirst urgent; bowels relaxed; pulse 104, moderate; respiration sharp, distressed in right chest anteriorly, full and soft in left, no rales. V. S. ad deliquium in the semi-erect posture, (sitting up) calomel grs. x. c. pulv. antimon. grs. x. statim. 5. P. M. Sulph. magnes. ℥iv.

19th, deliquium at 20 ounces; blood of a bright red colour, and scarcely separated from the vessel; fever went off about 7 P. M. he thinks, as soon as the medicine began to operate, and the pain remitted; aspect clear and healthy; skin quite cool; pulse 76; moderate; still some pain and cough: Sulph quinin. gr. iv. stat. et rept. 2da. q. q. hora, gr. ii. 3 P. M. pyrexia; solut. tartarizat. ℥i. 2dd. q. q. hora.

20th, fever returned and pain &c., exacerbated at 3 P. M. but in a much milder degree; perspired freely in the fore part of the night; skin cool; tongue clean; bowels open; pulse 72; still some pain and cough. Rept. quinine. ut heri. 21st, no return of fever. Contn. quinin.

23rd, convalescent, still pain in chest, and cough. Solut. tartarizat. 3da. q. q. hora. Omitr. alia.

The following cases are not my own, and therefore perhaps, are more valuable in illustrating the nature of this disease.

CASE 3rd. Abstract of the fatal case of Private Peter Cleary; Ætat, 37. Admitted 19th March, died 29th March 1840. Disease "Febris contin. Com." Constitution much debilitated in consequence (I am informed) of frequent attacks of intermitting fever, and from his debauched habits. On admission had all the usual symptoms of common fever of a low type. The disease presented nothing worthy of notice, until the 23rd, when he complained of tightness across the chest, with cough and expectoration tinged with blood. Twelve ounces of blood taken from the arm, restrained this symptom. On the 24th, the pulse was very weak; cough slight and expectoration without blood. On the 27th the pulse was 90, and he again complained of tightness across the chest. No blood in expectoration. 28th, much debility; pulse 95; tongue furred, and sordes about the mouth; slept a little. 29th, expired at 6 A. M. During the night he made no complaint. The treatment consisted in the abstraction of 12 ounces of blood from the arm, and in the application of a blister to chest, together with exhibition of small doses of tart. antimon; ipecac, and calomel in diaphoretic, nauseating and expectorating doses; Purgatives, &c. Quinine was twice given, when there was slight dimuntion of fever. During the last day, or so, a small quantity of wine was exhibited.

Sectio Cadaveris. — Two hours after death. Body greatly emaciated. Lungs adherent slightly to parietes of chest on both sides. The posterior and upper part of left lung partly, hepatized and congested. Large quantity of serum in pericardium. Liver healthy; Spleen much enlarged.

CASE 4th. January 9th, Private Patrick Kean. Ætat. 33, of ordinary stature, and strong muscular frame. Brought into hospital yesterday, morning complaining of acute pain in the left side of the thorax; referred to the 4th and 6th true ribs, increased by deep inspiration, and accompanied by cough and difficult expectoration. Tongue white; urgent thirst; hot dry skin; pulse 120, full and hard; bowels slow:—of one days duration. V. S. ad ℥xxx. Haust. purg. fort. Calomel, grs. iii. Antimon, tart. gr. ss. 2dis. horis.

10th. No alleviation of pain; cough rather more troublesome; expectoration difficult; hot dry skin; pulse 130, full and sharp; bowels moved once by the medicine. Reptr. v. s. ad., ℥xx., applicet. Emplast. Lyttæ. P. D. Haust. purg. fort. Contn. med. ut heri, et mist. tuss.

Vespere. Pain continues without any abatement; pulse 120. v. s. ad ℥xvi.

11th. About an hour after the bleeding, *remission of pain in the thorax*; cough troublesome, and expectoration still difficult; skin cool; tongue loaded with white mucus; *pulse* 90, *soft and regular*. Three dejections, blister risen well. Contn. ut heri. Vespere; *A recurrence of acute pain* in the thorax, extending to scapula. Two dejections; *hot dry skin; pulse* 110, full and hard. v. s. ad. ℥xvi.

12th. Experienced no relief from the bleeding; cough troublesome; expecto-

ration difficult; pulse 120, hard contracted, and vibrating; hot dry skin; tongue brown, furred in the centre; urgent thirst; one dejection; free discharge from the blister. Reptr. v. s. ad ℥xvi. contr. pil hyd. et tart. antimon. 2dis. horis; et mist. tuss.

13th. Little or no pain; slept greater part of the night; cough less troublesome; expectoration free; surface moist; pulse 105, small, soft and regular; three dejections, contr. ut. heri.

14th. Cough troublesome during the night, expectoration difficult, no pain, but that of blister. Tongue dry, brown, furred; surface covered with clammy sweat; two dejections. Pulse scarcely perceptible: sulph, quinin. grs. vi. 3 is horis. Expired at 2 P. M.

Sectio Cadaveris. Left lung strongly adhered to pleura costalis. On cutting into the substance of the lung, several small abscesses were discovered. The right lung healthy; heart somewhat enlarged.

We selected this case to compare with the last, we shall now add a successful one, under the idiopathic pleuro-pneumonic treatment.*

Case 5th. January 6th. Corporal John Ross. Ætat. 26. Of ordinary stature and frame; moderate habits; brought into hospital yesterday morning with acute pain in right side of chest; referred to 3rd and 4th true ribs near the articulation of the sternum, increased by full inspiration and cough; expectoration difficult; tongue covered with white mucus; hot dry skin; pulse 120, full and hard; was bled to 20 ounces. Haust purgans; calomel, grs. iii. et tart. antimon. gr. ss. 2dis horis. *Vespere;* Reptr. v. s. ad ℥xx.

7th. Pain continues without abatement; cough distressing; expect. difficult; surface moist; pulse 130, full and hard. Three dejections, v. s. ad ℥xxx. contr. calomel et tart. antimom; emplast lyttæ. sterno.

8th. Little or no pain; cough distressing; expect. difficult; tongue covered with thick brown fur; great thirst; hot dry skin; pulse 98, full and hard; *mouth slightly affected by the medicine.* Four dejections; moderate discharge from blister; omitr. calomel, contr. alia.

9th. Four dejections, other symptoms stationary. Contr. antimon, tart; et mist. tuss.

10th. Continues free from pain; cough troublesome; expect. free; skin moist; pulse 120, somewhat full and sharp; bowels slow; Haust. purg. tart. antimon, gr. ss. cont. mist. tuss.

11th. Three dejections; cough diminishing; expect. free. contn. ut heri.

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* I would recommend antiphlogistic treatment pretty free during the first one or two paroxysms; but, in the remission liberal doses of quinine. If a first remission, however, when brought under observation, I would begin at once with quinine and leave venesection, &c, till the exacerbation, if any; perhaps, a moderate bleeding at the same time. If not checked, soon the lungs, we have seen, go on to hepatization and purulent infiltration; or it terminates in a chronic pleuritis or empyema:—all of which ought to be borne in mind in the after treatment.

12th. Cough troublesome during the night; expect. mucous and free. Temperature natural; pulse 79, soft and regular.

13th. Cough gradually diminishing; expect. free; bowels slow. Haust. purg. stat. Contn. alia.

14th. Continues improving; four dejections. Contn. mist.

16th. Free from cough; bowels active. Contn.

18th. With the exception of debility, free from complaint. Contn. 25th. Convalescent.

In the Queen's Royal, we had two or three with chronic pleuritic symptoms, supposed, depending upon adhesions, but they all I believe recovered. In the 17th, however, we have three of chronic pleurisy owing, we suppose, to the unfortunate wreck of the ship Hannah. They were all in hospital at the time, under this fever.

The case of Cardiac disease at Khandár ("Smith") ought here perhaps, to follow, but, as it was given at the time in a separate form, we shall not further burden this report, but conclude with an outline of the case of Popliteal Aneurism. The subject of it,

Private ————————, aged 41. Was admitted at Thuggur bunder, with pain and stiffness of the left leg, from a pulsating tumour in the ham, the size of an egg, evidently aneurismal. He knew no cause, unless it might have been leaping the nullas on route to Cabūl. He first noticed it the day we left that city; and it had gradually been getting larger.

Venesection, and the usual treatment, were had recourse to, to restrain it, if possible, till we got to a place where the man might be kept, at rest. By the time, we reached Karachee, it had acquired a much larger size, was of an oblong shape, and completely filled the space between the ham-strings. Notwithstanding the man's age, &c., the operation of tying the artery in the upper forepart of the thigh, was determined on.

In its execution, I had the able assistance of Drs. Hadley, H. M.'s 40th Regt. and Cahill, 1st Grenadier Regiment; also Mr. Dartnell of H. M.'s 4th Light Dragoons, and Dr. Jopp who had recently joined the Queen's Royal. We took rather a long time about it, but not a tea spoonful of blood was lost, and the artery was secured in the best possible manner. Not a pulsation was ever felt again in the tumour. We cut both ends of the ligature close off, and closed the wound with sutures and straps; and the man was left in the Hospital of H. M.'s 40th Regt. under the care of Dr. Hadley. After my return to Karachee, with the 17th Regt. I had the pleasure of receiving the noose, perfect, as the day it was put on; and the tumour was nearly gone. From the 20th day, there were occasionally little abscesses, and discharges of matter, till the 30th, when the noose was discharged.

The operation was completely successful, but in a similar case whether both ends of the ligature, should be cut off, as in this, we were not agreed. I think I should again cut, for the adhesion by the first intention is the grand object, till the artery is secured by nature. Dr. Hadley, however, saw it in another light; it was a continual source of anxiety to him till discharged.

Article. XII.

A Synopsis of ten years Meteorological observations on the Mahabuleshwur hills. Lat. 17° 56′ N. Long. 73° 30′ E. Heighth above the Sea 4500 feet.

Table I. Shewing the Means and Extremes of Temperature &c., for each Month (1828 —1838.)

Months.	Out-door Temperature in the shade										Out-door Temperature in the sun.				Atmospheric Humidity.		Evaporation.		Rain.					Winds.		Appearance of the sky, &c.
	Means.						Extremes.				Means.		Extremes.		Means	Extrs.	Means	Extrs.	Means.				xtrs.			
	Mean Temperature.	Mean daily variation of Temp.	Mean Maximum Temperature.	Mean Minimum Temperature.	Mean Temperature at 9 A. M.	Difference of mean temp. of each successive month	Extreme daily variation of Temp.	Ex. monthly var. of Temperature.	Extreme Maximum Temperature.	Extreme Minimum Temperature.	Mean Max. Temp. in the sun.	Mean Max. amt. of Solar Radiation.	Ex. Max. Temperature in the sun.	Ex. Max. amount of Solar Radiation.	Mean depress. of moist-bulb Ther.	Ex. depression of moist-bulb Ther.	Monthly evaporation.	Extreme daily evaporation.	Day fall.	Night fall.	Total monthly fall.	No. of rainy days.	Extreme daily fall.	Direction.	Force.	
	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′										
October	66.5	10.7	71.9	61.2	67.9	1 8	15.8	19.5	78.5	54.0	99.6	26.4	113.0	39.0	7 .6	15.2	11.30	0.58	2.02	1.55	2.23	5	2.15	vbl.	Light.	Cloudy, with drifting fogs first half, subsequently clear.
November	63.5	10.7	68.9	58.2	63.6	3.0	16.5	21.0	72.5	51.5	95.3	24.4	113.0	38.7	7.4	13.8	8.45	0.58	1.14	2.14	6.45	7	4.32	Easterly	Modert.	Clear.
December	61.4	11.6	67.2	55.6	60.6	2.0	15.5	24.5	73.5	48.5	95.1	25.5	110.0	40.0	7.3	12 0	10.45	0.59	..	..	0.08	0	0.35	do.	Fresh.	Do.
January	62.8	13.5	69.6	56.0	62.5	1.4	17.0	30.5	75.5	45.0	94.5	26.0	109.0	41.0	11.5	16.0	15.58	0.66	..	..	0.00	0	0.05	do.	Do.	Do.
February	65.7	13.3	72.4	59.0	66.7	2.8	20.0	32.1	79.5	46.0	101.5	27.1	117.0	39.0	13.1	18.6	10.86	0.51	0.03	0.04	0.10	0	1.35	ENE. NNW.	Light.	Do.
March	70.6	14.5	77.9	63.3	70.1	4.9	20.7	33.5	87.0	49.5	109.9	28.7	127.0	44.5	15.6	21.5	17.44	0.79	0.03	0.05	0.12	1	0.68	NE. NNW.	Do.	Do.
April	73.6	14.3	81 0	66.3	76.0	3.0	20.6	34.5	90.5	56.0	106.3	24.5	125.0	39.5	14.8	23.5	16.78	0.80	0.62	0.01	0.74	3	1.70	do.	Fresh.	Do. with occasional clouds.
May	73.1	13.9	80.1	66.2	75.8	1.0	22.0	30.7	89.0	57.3	97.4	19.6	124.0	38.5	11.3	24.0	14.96	0.62	1.77	0.86	3.14	4	4.42	do.	Do.	Do. with cloud and frequent fogs latter half.
June	66.2	6.5	69.5	63.0	67.7	6.9	18.5	21.8	82.0	56.5	..	..	..	..	2.8	6.0	2.28	0.44	20.83	19.27	36.77	23	11.32	wsw.	Modert.	Foggy.
July	63.4	2.3	64.6	62.2	63.8	2.8	8.0	11.8	73.8	60.0	..	..	..	..	..	..	0.33½	0.02	36.59	35.57	73.74	30	11.30	do.	High.	Continued dense fogs
August	63.2	2.3	64.4	62.1	62.8	0.4	8.0	10.0	70.8	60.0	..	..	..	..	..	..	0.25½	0.02	38.14	36.53	82.58	30	12.67	do.	Do.	Do. do.
September	64.7	4.5	67.0	62.4	64.9	1.4	14.0	17.0	77.0	56.0	..	..	..	..	..	..	0.53½	0.07	20.66	18.63	23.24	24	13.06	do.	Modert.	Frequent light fogs.
Decennial, Means and Extremes	66.2	9.8	71.2	61.3	66.8	2.6	22.0	34.5	90.5	45.0	99.9	25.2	127.0	44.5	10.1	24.0	109.2½	0.80	121.83	114.65	229.19	127	13.06			

Table II. Shewing the Means and Extremes of Temperature &c., for each Season (1828—1838.)

Seasons.	Mean Teperature.	Mean daily variation of Temperature.	Mean Maximum Temperature.	Mean Minimum Temperature.	Mean Temperature at 9 A. M.	Mean Maximum Temperature in the sun.	Mean Maximum amount of Solar Radiation.	Difference of Mean Temp. of coldest & hottest months.	Difference of Mean Temp. of each season & the Annual Means.	Diff. of Mean daily var. of each season & the Annual Means.	Diff. of Mean Temp. of each successive season.	Mean difference of moist bulb Thermometer.	Amount of Evaporation.	Fall of Rain.	No. of Rainy days.
	° ′	°	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	′	° ′		
Cold Season. .1st October to 28th February	64.0	11.9	70.0	58.0	64.2	97.2	25.8	5.1	2.2	2.1	0.3	9.4	56.67	8.86	12
Hot Season....1st March to 31st May.....	72.4	14.2	79.7	65.3	73.9	104.5	24.2	3.0	6.2	4.4	8.4	13.9	49.18	4.00	8
Rainy Season..1st June to 30th September .	64.4	3.9	66.4	62.4	64.8	..	..	3.0	1.8	5.9	8.0	..	3.40	216.13	107

Note. — The Temperatures in the shade, are taken from Thermometers suspended out of doors in a verandah protected by a thatched roof from the direct influence of the solar rays, but freely exposed to the open air on the northern side: — the mean temperatures being deduced from observations taken at the two periods of greatest cold and heat. — The Temperatures in the sun are taken from a Thermometer (with its bulb covered with coarse black wool,) supported horizontally, three feet above the ground, on a light wooden frame, which admits of the free circulation of air, around it. — The atmospheric humidity is ascertained by wetting the bulb and lower part of the stem of a Thermometer, wrapped in muslin, with cold water, and observing the amount of depression arising from the cold produced by evaporation.

The observations on solar radiation extend only to two years; — those on the moist-bulb thermometers, are for four years; — on evaporation for one year; — and the separate registration of the day and night fall of rain for six years: — all the other observations embrace a period of ten years.

Summary of mean and extreme decennial results.

Mean Annual Temperature in the shade.	66° 2.
—— Daily Variation of Temperature in the shade.	9° 8.
—— Maximum Temperature in the shade.	71° 2.
—— Minimum Temperature in the shade.	61° 3.
—— Temperature at 9, o'clock A. M. in the shade.	66° 8.
—— Temperature of the cold season in the shade.	64° 0.
—— Temperature of the hot season in the shade.	72° 4.
—— Temperature of the Rainy Season in the shade.	64° 4.
Extreme Daily Variation of Temperature in 10 years.	22° 0.
—— Monthly Variation of Temperature in 10 years.	34° 5.
—— Yearly Variation of Temperature in 10 years.	43° 1.
—— Range of Temperature in 10 years.	46° 0.
—— Maximum Temperature in 10 years.	91° 0.
—— Minimum Temperature in 10 years.	45° 0.
Difference Of Mean Temperature of the Cold and Hot Season.	8° 4.
—— Of Mean Temperature of the coldest and hottest months of the year.	12° 2.
—— Of Mean Temperature of each season and the annual mean.	3° 4.
—— Of mean daily Var. of each season and the annual mean.	4° 1.
—— Of Mean Temperature of successive months.	2° 6.
—— Of Mean Temperature of successive seasons.	5° 6.
Mean Maximum Temperature in the Sun, during the cold and hot seasons.	99° 9.
—— Maximum amount of Solar Radiation in the Sun during the cold and hot seasons.	25° 2.
Extreme Maximum Temperature in the Sun during the cold and hot seasons.	127° 0.
—— Maximum amount of Solar Radiation in the Sun during the hot and cold seasons.	44° 5.
Mean Annual amount of Rain,	Inches 229. 19.
—— Annual Day-fall of Rain,	Inches 121. 83.
—— Annual Night-fall of Rain,	Inches 114. 65.
—— Number of rainy days.	127
Extreme Annual fall of Rain,	Inches 297. 41.
—— Monthly fall of Rain,	Inches 118. 54.
—— Daily fall of Rain,	Inches 13. 06.
Mean Depression of Moist-bulb Thermometer.	10° 1.
Extreme Depression of Moist-bulb Thermometer.	24° 0.
Mean Annual Evaporation,	Inches 109. 25.

APPENDIX.

APPENDIX.

1.

Abstract of the annual reports, for the years 1838 *and* 1839, *of the field detachments stationed at Balmeer, by the late* Assistant Surgeon S. P. Prichard.

Situation. The town of Balmeer is situated on the eastern side of a range of hills, which runs in a direction nearly from north to south in N. Lat. 25° 40′ E. Long. 7° 30′. The population is rated at 3,000; the houses are built on the sides of the hill, and extend about half way up its height. The camp is situated on a plain about two hundred yards to the east-ward of the town, and is surrounded by a low thin jungle, which in many parts, to the distance of six or eight miles, has been nearly cleared away, for firewood, within the last four or five years. The surface of the surrounding country, is covered with light sand; in some places from two to four feet in depth, and underneath, a stratum of very compact hard mohrum, is generally found.*

Climate. In regard to the climate of Balmeer, more detailed observations will be found in the register for 1837, kept by Mr. Forbes and published, in August 1838, in the proceedings of the Bombay Geographical Society, than are to be obtained in these reports.

The following table is a comparative view of the fall of rain at Balmeer for the years 1837, 1838 and 1839.

Register of pluviometer for the years of 1838 *and* 1839.

	1837.		1838.		1839.	
	In.	Cts.	In.	Cts.	In.	Cts.
January	.	.	.	.	.	75
February	.	15	.	.	.	.
March	.	.	.	.	.	9
April	.	.	.	.	.	5
May	.	10	2	91	.	10
June	.	98	.	.	.	.
July	3	75	.	30	13	7
August	3	39	3	31	.	.
September	.	42	.	91	2	21
October	.	.	.	.	.	.
November	.	12	.	.	.	.
December	.	.	.	.	.	.
Total	8	91	7	49	16	27

* For a full account of this part of Marwar, reference may be made to a paper by F. Forbes, A. M., Assistant Surgeon, published in the proceedings of the Bombay Geographical Society, in August 1840.

Diseases. The disease, to which Mr. Prichard chiefly calls attention in his report for 1838, is a form of scorbutus, of which during the first six months of the year, he saw eleven cases; the symptoms of the disease are thus described. "The patient complains of pain in the legs, particularly the calf; the gums become spongy, bleed on being touched and separate from the teeth which become loose; the tongue is white and glossy; pulse quick and weak; urine high coloured and passed in small quantity; contraction of the muscles of the calf takes place; the patient loses his appetite; the countenance becomes sallow followed by great dejection of spirit, and emaciation." In three cases, I recollect observing patches of a livid colour on different parts of the body; but only in two cases, was there any oppression at the præcordia."

In regard to the treatment, Mr. Prichard observes, "As to remedies in this disease, the only one in my opinion that can be depended upon, is change of air; but, as a residence of some few months in the place, seems to me, to be necessary to its production, I feel confident, that relieving the detachments half yearly, instead of annually, would be attended with the greatest benefit and I trust, this will be brought to the special notice of Government by the superintending surgeon." Mr. Prichard attributes this scorbutic affection to the deficient supply of water, its brackish quality; and to the scarcity, during the greater part of the year, of vegetables or fruit.

During the year 1839, only three slight cases of scorbutus occurred, but no cause is assigned for this decrease.

Fevers. During the year 1838, were infrequent, and the few cases, chiefly occurred in the detachment of the 6th Regiment N. I. which arrived at Balmeer early in June, and had been exposed to considerable fatigue, during its march from Deesa.

In the year 1839, during the months of September and October, numerous admissions of fever, chiefly quotidian, are borne on the hospital returns. Mr. Prichard offers the following explanation of the prevalence of fever during these months. "On casually looking over the monthly admissions, the vast difference between the number of fevers admitted in September and October 1839, and those admitted in the same months in any preceding year, might doubtless be attributed, to the increased fall of rain at Balmeer. The mystery is easily solved, by stating, that the troops marched on Gurra on the 3rd September, and remained there under canvas until October 2nd. Gurra is situated on the banks of the river Loonee. About the 12th September the rain came down in torrents; 6 or 8 cavalry tents were slit up:—for four days, it continued to rain occasionally, and I should say, at least 5 inches fell (the pluviometer was in use at Balmeer). The water lodged in all directions around us. In addition to this, very heavy dews fell at night, and the men, contrary to order, were frequently found sleeping in the open air:—who then can wonder at the result?" "Out of 260 men who went to Gurra, 89 were admitted with fever during September and October, exclusive of readmissions; out of 100 men who remained at Balmeer only 9 fever cases were admitted during the two months; giving in the former case, a per centage of nearly 35; in the latter only 9. The fall of rain at Balmeer was not half so heavy as that at Gurra, it being only 2 inches and 21 cents. It may be said, that we should look to the natives of the place to judge of the healthiness or unhealthiness of the season: fever was certainly prevalent amongst them, but where were they dur-

ing the rains? not in their houses, but living in their fields, with scarcely a rag to protect them.

Other Diseases. Rheumatism is described as of frequent occurrence, chiefly in the cold months, and is generally obstinate and difficult to remove. Injuries of the feet, are very often succeeded by sympathetic buboes. Whitlows and large indolent boils are common.

Surgical Cases. On the frequency of accidents in 1838, Mr. Prichard remarks "The number of accidents amongst the Troopers and Syces at watering parades, has been very great, which I attribute to two causes, 1st, the confined and badly constructed place where the horses are watered, and 2dly, to a number of vicious horses in the squadron; three of which have been lately castrated. The former cause will, I trust, soon be removed, as a commodious trough for watering the horses, is laid down in the plan of the well now in progress; to the latter, of course, we must be always more or less subject."

The Surgical cases were as follows.

Fractures. Thigh, oblique, 2 cured. Leg, tibia and fibula, 1 cured. Leg, tibia compound, 1 cured. Dorsum of the scapula, 1 died.

The case of fracture of the scapula, occurred in a sepoy of the 6th Regiment; whilst under treatment, scorbutic symptoms came on; he was sent to Deesa for change of air, and died suddenly, the day after his arrival: two pounds of extravasated blood, were found at the site of the fracture.

The other cases were, 1st, amputation of the arm in a Bheel, the extremity having been nearly separated by a sword wound; 2nd, amputation of the middle finger of the right hand, at the metacarpal joint, in consequence of caries of the bones resulting from whitlow; 3rd, lacerated wound of the forearm from the bite of a horse; 4th, severe lacerated wound of the muscles of the thumb; 5th, wound of the deep palmararch, cured by compression; 6th, a case of snake bite treated successfully with Liquor ammoniæ, and other stimulants — this case was similar in nature to those described by Mr. Forbes at p. 16 and 17 of the 2nd volume of the Society's transactions; 7th, a wound across the tarsus from the bite of a horse; 8th, a case of extensive sinus successfully treated with injections of sulphate of zinc. 9th, four fatal cases of burns caused by the conflagration of a chuppured tent.

In 1839. There were only two surgical cases worthy of notice, 1st, fracture of both bones of the leg. 2nd, fracture of the ulna.

Vaccination. On this subject Mr. Prichard remarks in the report for 1838, "With regard to vaccination, several attempts have been made with lymph sent from Deesa, but we have not been able to succeed in any one instance." "An arrangement was made by Captains Richardes and Prescott, in March, to enable a native assistant to vaccinnate through the different villages between Deesa and this place, and thus bring it fresh from village to village; but the assistant did not make his appearance and we must now endeavour to get it out with the relieving detachments."

2.

Meteorological observations, chiefly on Solar radiation, made at Mhow, by A. Weatherhead, Esq., M. D.

The following extracts have been taken from Dr. Weatherhead's annual report of the 7th Regiment N. I. for the year 1839, and from a letter subsequently addressed by that Gentleman, to the Secretary to the Society.

"I may here state, as probably in connection with the prevalence of fever lately, the extraordinary results of some of the Meteorological observations made here; in the hottest time of the year, in the course of April and May, the actinometer gave a mean of 160°, while the mean heat of the air in the shade at the same time, was 98°; shewing 62° due to the intensity of the solar rays, — a great amount. But, observations by the same instrument, in December, gave a mean of 152° 5′ while the mean heat of the air in the shade, was 79° 5′; shewing no less than 73° due to the intensity of the solar rays. Further observations at the former period, the hottest season, by a thermometer exposed freely to the action of both sun and wind, gave a mean of 123°; shewing 160° — 123° = 37 to be due to the cooling effect of the wind; while in December, the same observations gave a mean of 93° 7′; shewing 152° 5′ — 93° 7′ = 58° 8′, due to the cooling effect of the wind. This shews, that the less heat, to which bodies in the open air, are exposed in the cold than in the hot season, is due, much more to the cooling effect of the wind, than to any difference in the absolute intensity of the solar rays in the hot weather; therefore, bodies freely exposed during the day in the open air, were subject to a variation of 37° of temperature; while in December, it amounted to 58° 8′. And, although the condition of complete protection from the cooling effects of the wind, is perhaps never complete yet in the lee of walls, &c. it is far carried out; and in camps, villages, &c., where the currents of air are constantly varying, the variations of temperature to which bodies are exposed during the day, is immense. The absolute variation in 24 hours, to which bodies thus freely exposed, are subject, is still more extraordinary, and may be shortly stated thus; in December an æthrioscope gave a mean of 40° as the temperature, to which bodies freely exposed in the open air, at sunrise, were subject, while the actinometer gave 152° as the mean, to which bodies freely exposed to the sun's rays, and completely sheltered from currents of air, were subject; therefore, bodies were exposed in the 24 hours to a variation of 152° — 40° = 112°; and although the two conditions, are never perhaps both fully attained, yet men on guard, and on parade or drill at day light, realize entirely the one; and men wandering about the bazaars and camp, most frequently approach the other. I may state, that somewhat similar results were found from observations at Sholapore in 1837.

The other circumstance I would remark, of this climate of Malwa, is its extreme dryness in the cold season; it is considerably more dry here, than I found it in the Deccan, by similar observations; I cannot state the mean, as out of 29 days, on 20, it was more dry than Leslie's tables are calculated for; but it was certainly more dry than in the hottest season, and on two days the observations shewed, that there was not one grain of moisture in a cubic mass of air of 40 inches.* * * * * * * * *

"The results of observations in January and February 1840, are very similar to those of December, and the remarks made in the annual Report are quite applicable; those of the hot months of April and May this year, differ from those of last year, in the mean absolute intensity of the Solar rays, being about 8° higher, viz. 163°; and in the amount due to the cooling effect of the wind, being much greater; so that the variation of temperature, to which bodies exposed in the open air, were subject, was nearly as great as in the cold months. I beg leave to send the following detailed observations on those points, as they may perhaps be of use in drawing comparisons.

	Bushire, Persia, January 1836. Observations on 10 clear days.	Bassadore, Persia, February 1836. Observations on 11 clear days.	Bassadore, March 1836. Observations on 16 clear days.	Sholapore, Deccan, April 1837. Observations on 19 clear days.	Sholapore, May 1837. Observations on 20 clear days.	Sholapore, June 1837. Observations on 7 clear days.
Mean daily maxima in the shade	56.6	68.4	73.6	100.8	103.9	94.3
Exposed to the sun's rays	133.2	126.3	133.5	147.4	145.0	138.7
Due to intensity of solar rays	76.6	57.9	59.9	46.6	41.1	44.4
Exposed to sun and wind	66.7	81.4	79.5	131.8	134.7	124.3
Due to the cooling effect of the wind*	66.5	44.9	54.0	15.6	10.3	14.4

Sholapore, August 1837. Observations on 8 clear days.	Bassadore, September 1835. Observations on 26 clear days.	Sholapore, September 1837. Observations on 13 clear days.	Bassadore, October, 1835. Observations on 11 clear days.	Sholapore, October 1837. Observations on 14 clear days.	Akulkote, Deccan, October, 1838. Observations on 12 clear days.	Sholapore, November 1837. Observations on 5 clear days.	Akulkote, November 1838. Observations on 11 clear days.	Bushire, Persia, December, 1835. Observations on 3 clear days.
91.5	91.1	89.0	86.8	91.0	91.7	85.4	85.8	60.7
138.2	138.3	151.2	142.4	164.7	148.0	141.6	148.9	130.7
46.7	47.2	62.2	55.6	73.7	56.3	56.2	63.1	70.0
122.1	99.6	125.6	99.4	131.2	127.5	110.8	126.9	79.0
16.1	38.7	25.6	43.0	33.5	20.5	30.8	22.0	51.7

These observations corroborate the results found at Mhow last year; that there is little difference, in the absolute intensity of the Solar rays, in the cold and hot seasons; that in the cold season, the less heat, to which, bodies in the open air, are subject, is principally due to the cooling effect of the wind, and that the variation of temperature, to which they are then subject, on clear days, is considerably greater than in the hot months. The contrast of columns 1

* Or amount of variation of temperature, to which bodies in the open air in clear days, were constantly exposed.

and 5, is remarkable. The only instrument it has been in my power to use, is the common thermometer in various ways; the observations are therefore no doubt imperfect. I may say however that great care has been taken in noting them, and that they have been as far as possible, made under the same conditions. For an actinometer I have covered the bulb with black silk, and introduced it, into a common cylindrical lamp, carefully closed at the bottom, resting it on a cushion of cotton, and the top carefully stuffed with the same, to exclude all air, and thus exposed in a sloping position, to the sun's rays. The observations on the effects of the wind, were made on a thermometer, exposed freely to its action, and also to that of the sun's rays, on the ground, and protected from the reflected heat, by a thick cushion of cotton on which it rested. Those on the heat in the shade, were made on a thermometer, about 5 feet from the ground, protected from reflected heat, by its case, and by the projection of the verandah above. Those observations mentioned as taken by an œthrioscope, are simply, on a thermometer exposed all night, resting on a cushion of cotton, on the ground, in an open space, in a sloping position, so as to be freely exposed to radiation: the former observations were made at 2 P. M. and the latter at sun-rise."

3.

Notes on the Scurvy, as it has appeared at various times, in the Jail at Rutnagherry, by J. Bourchier M. D.

"The disease is said to have existed, among the prisoners in this Zillah, as early as the end of the year 1821, or beginning of 1822. This is stated, on the authority of a letter from the criminal Judge of Ahmedabad, dated 23rd of February 1825; and the criminal Judge of the Southern Koncan confirmed the same, in a letter (dated 7th Novemer 1825) regarding 100 convicts transferred to the former Zillah on the 13th May 1822. But, whether these men ever landed here or were forwarded direct from Malwan, is even doubtful; though in the former case, they could not have been quite six weeks in this place, which was made the principal station of the Zillah at the end of March 1822.

It appears from the Hospital records, that the disease was always most extensively prevalent in the months of December, January, February, and March. It was first specifically named in the returns in July 1836, agreeably to instructions received from the Medical Board.

It is confidently stated by the late Dr. Stewart, in the records of the hospital, that after particular enquiry, he is satisfied that no one caste is more obnoxious, than another to the disease; my own experience has hitherto been too limited to allow of my offering any positive opinion on this point, but as far as I have had opportunities for observation, by far, the greater number of those affected, have been Mahars, or others of the lowest caste.

Some who were the subjects of the disease had been only 15 days in the Jail, others two years. These are stated as extreme points, and a doubtful average period of 19 months is given by Dr. Stewart, as the time which elapsed, before scorbutic symptoms declared themselves.

During a residence of six years in various parts of the Konkan, Dr. Stewart had never seen a case of scurvy, but in this Jail, and states that it does not exist in Rutnagherry, nor in any of the surrounding villages. It has hap-

pened to me, to see two or three cases among sepoys of the rangers, who had come in from Tannah; one of them most inveterate, exhibiting all the worst characters of the disease.

The years 1833, 1834 and 1835, were remarkable for the extensive prevalence of scurvy in the Jail. In 1836, there were only five cases, and in 1837 none. During the past year, only two slight cases presented themselves, but in February of the present year (1839) four prisoners were admitted with severe scorbutic symptoms, and of these, one died.

Supposed Causes. Of course much attention has been paid, to discover the causes of this malady, and the water of the Jail wells, has been more suspected than any other source. But Mr. Henderson, Acting Superintending Surgeon, who in this belief suggested, that it should not be used during a certain portion of the year, was of opinion that this endemic did not owe its origin to any single cause. The wells in the Jail are four in number, and were brought into use in 1827 when the building was first occupied. At the recommendation of the Medical Board, grounded on Mr. Henderson's suggestion, no water from these wells, is now used for cooking or drinking, from the 1st November in each year, to the setting in of the monsoon. This regulation was first enforced in 1835. During this period, being more than half the year, Bheestees are employed in the proportion of one to fifty prisoners. They bring water, for the above mentioned purposes, from two wells, one of these, is situated immediately in front of the Jail, and at a somewhat lower level, with only the road intervening. From this, the Brahmin prisoners, owing to their religious prejudices, are allowed to supply themselves. The other well is situated to the southward, and distant about a quarter of a mile, considerably below the level of the Jail; it always affords a plentiful supply of good water. The sick are at all times supplied in the same way as the other prisoners.

The several wells within the Jail, when in use, are not now respectively appropriated to different castes, as appears formerly to have been the case; only, the Coomars and Mhars are not allowed to draw water, but are supplied by the other prisoners The supply of water, begins to decrease towards the end of December, and from that time, continues gradually to diminish. In the month in which these notes are written (March 1839) only one of the wells affords a copious supply; the water drawn from it, is clear and pure in appearance, nor does it let fall a sediment, on standing. That from the other three, is cloudy, and of a yellowish colour on being drawn, and after standing 24 hours or more, throws down a copious yellowish brown sediment, and shows a great quantity of flocculent particles of a similar kind, suspended throughout the fluid.

No cases of Scurvy have ever occurred among the female prisoners, whose diet is the same as that of the men, and whose confinement is more strict; there are generally from 15 to 20, who occupy a separate compartment of the Jail; their sleeping cells are smaller and warmer than the men's, and none of them, ever go beyond the limits of the small yard, in which they are confined. One has been twenty years a prisoner, and an inmate of this Jail from the time it was first occupied in 1827, and others for various periods of considerable duration.

As this paper is not intended as a medical dissertation, but a mere collection of facts bearing on the history of this disease, in a particular locality, I shall

not indulge in speculation, further than to state my belief, that the water of the Jail wells has, with reason, been suspected as a principal cause, at a certain season of the year, of the mischief; and I have understood, that the late Mr. Lawrence first directed Mr. Henderson's attention to this important point. A glance at the table appended to this paper, will show, that the disease was nearly extinguished by the judicious measure of forbidding the use of this water for seven months of the year; which order was issued in 1835, as already stated, but not till just before the setting in of the monsoon, and consequently too late to reduce materially the number of cases of scurvy in that year. But in the next year, only five cases presented themselves, (perhaps continued from the preceding) and in 1837, none.

The disease has lately again shown itself, but not to any very serious extent; with scarcely an exception, it has been confined to the Mhars, and has attacked only young and robust men. They ascribe it to the privation of tobacco, and though this statement should not be too implicitly credited, considering their great anxiety for the restoration of this indulgence, it may yet be thought worthy of consideration. These men had been accustomed to smoke the leaf, and to use the ashes as a dentifrice.

Table of Scurvy cases admitted into the Jail Hospital at Rutnagherry during the undermentioned years.

Months.	1833.	1834.	1835.	1836.	1837.	1838.	1839.
January	21	12	10	1	..	..	2
February	17	3	19	2	..	1	4
March	10	4	13	..	..	1	2
April	5	5	21	..	..	..	..
May	10	8	4	..	..	..	..
June	4	8	5	..	..	..	..
July	2	5	7	..	..	..	..
August	10	1	7	1	..	..	..
September	6	..	5	..	..	..	..
October	5	..	8	..	..	..	..
November	6	3	..	1	..	..	..
December	4	9	1	..	..	..	..
Yearly Total ...	100	58	100	5	..	2	8

Rutnagherry, March, 1839.

4.

Description of the operation of Lithotomy as performed by a native Surgeon in the presence of A. Gibson, Esq. *Communicated by that Gentleman in a letter addressed to the Secretary to the Society.*

"I take the liberty of sending you an account of an operation for Lithotomy, which I lately witnessed, and which was performed by a native Surgeon.

The subject of the operation, was a boy aged 8 years, who had for the last two years laboured under all the symptoms indicating the existence of a stone in the bladder. No preparation of the system by medicine, was had recourse to previous to the operation. The patient having been made to stand upright, and to stretch his arms and body as much upwards as possible, several times, was then seated on a chair temporarily formed by the crossing of several

strong folds of a native cummerbund across, and under the thighs of the principal assistant, who kept the seat tight, by holding his limbs well apart This man was supported in this position, laterally and posteriorly, by the backs of 4 men seated close to him.

The little patient was now seated in the lap of the principal assistant, and the operator proceeded to press the abdomen obliquely downwards, by the hand inclined against the umbilicus. This having been done, he introduced the fore and middle fingers of his left hand into the rectum, and having apparently secured the stone in a position; he proceeded to cut down, towards it, with an old penknife. The incision began half an inch from the anus and was continued, obliquely outwards, forming an angle of about 45° with the perineal raphe. It was a gradual dissection rather than a blind thrust, and he cut deepest anteriorly; the part of the bladder intended to be pierced, was apparently behind, and laterally to the cervix. The flow of urine having indicated, that the bladder had been pierced, the inner incision was slightly enlarged by the edge of the knife, turned backwards; and the knife having been withdrawn, a common iron hook was passed into the bladder; and having hooked the stone, it was extracted by a see-saw motion, of the hand. The hook used, was slightly concave on its interior side. The stone having been extracted, the patient was made to sit down in a hip bath, and was immediately made to chew, and swallow a lump of assafœtida, weighing about half of a drachm, and thereafter, a purgative dose consisting of Ol: Ricini and tamarind juice was administered. Within the lips of the wound, was placed a half masticated mouthful of Pan, and Betle-nut, and the patient was put to bed.

After the 15th day, the urine began to flow by the natural channel, and the patient, is now in good health. The stone was apparently of the most common species, viz. that formed from uric acid. The time occupied in the operation, did not exceed 7 minutes.

The operator in this case, was a "Shustr Weydh" or operating Physician named "Boodun." He lives at the village of Jowla near Seroor, and appears to make a good livelihood by travelling about as an operator. He shewed me, about 20 stones which he had taken from different people, and said, that he had possessed many more, but that he had sold them to different people, to whom they had been prescribed as medicine. I know, that these calculi are esteemed by the natives as a remedy in Epilepsy, and some other affections of the nervous system.

The same operator operated next day, on a boy some miles distant from this place: — that patient has also since recovered. The same man frequently operates in cases of cataract, staphyloma, dropsy, and in short in all cases, requiring the use of the knife. In operating for the extraction of piles he previously applies an arsenical ointment, and little cutting is thereafter required In amputations, he ties the vessels with silk ligatures, or uses the actual cautery according to circumstances. In ascitis, and hydrocele, he punctures with a lancet, and afterwards inserts a clumsy tube of brass like a blowpipe To excite irritation in the eyelids in cases where it is wished to promote the absorption of a speck, he uses the legs of a "Gomusa" or horse fly caught for the purpose.

True to the Indian principle of a limited circle of art, beyond which, he cannot pass, he meddles only with diseases requiring the knife. Of those which

do not admit of its use, he professes to know nothing : — thus, a simple fracture he cannot set, but let the fracture be compound, with protruding bones, and flesh wounds, it then falls within his surgical province ; and he informs me, that in one case, he cut out the lower half of a tibia, and supplied its place with the fresh leg bone of a deer, which afterwards became an integral part of the restored limb. That this operation is performed by native Surgeons, I have heard before, but I could not succeed in procuring an inspection of one man, on whom it had been performed, in Ahmednuggur : when I enquired for him, I found, he had gone with his camels on service.

The above mentioned practitioner is most desirous, to possess a couple of trocars, and I would feel happy to present him with the same, in case, the Medical Board, or Government, should see fit to authorize me, to do so.

I ought to mention, that his lowest charge for the operation of Lithotomy is Rs. 5. From a substantial cultivator he would expect from Rs. 15 to 20 ; besides, the keep of his mare, and rations for himself, for a few days.

Government Garden Hewra. 23rd June, 1840

5.

A short notice of the station of Karrachee in Lower Scinde: by F. S. Cahill, M. D. *in a letter addressed to the Superintending Surgeon.*

" In reporting upon the state of health of the Regiment (2d Grenadiers) under my medical charge, for the months of August, September and October ; I have the honour to state, that for the period referred to, which embraces the unhealthy season, I have never known a Regiment, at any of our stations, more efficient. The sick for the last 3 months, have been comparatively few, particularly, when it is considered, that 18 chronic cases of unfits, were borne upon the Hospital returns.

The diseases were generally of a simple and tractable nature, and none prevailed epidemically. The casualties were two, in the month of August ; one died of chronic dysentery, the other of scurvy ; in September none ; in October none. Of 13 European officers at head quarters, only one required medical attendance, and that for an injury. Chronic rheumatism has been the prevalent disease ; chiefly attacking the old sepoys, most of whom, have been in hospital with it for many months ; much of the disease may be fairly attributed to the harrassing night duties, under heavy dews, which were requisite on our arrival in Scinde. For since these duties have been in a great degree, dispensed with, and temporary lines and sentry boxes erected, but few cases of rheumatism have come into hospital and these were soon able to return to duty. We have had few cases of fever ; these slight and not complicated with visceral disease. They might be referred more to accidental causes, viz. exposure to night damp, and escort duties in the sun. There is no other disease included in the returns for August, September and October, which calls for particular mention ; the cases being such as are of common occurrence unconnected with climate. Individuals who were unhealthy in Guzerat, i. e. suffering from fever, every spring, have enjoyed tolerably good health here. That the climate does not tend to weaken or subdue the constitution, is I think, evinced by the fact of the men looking healthy, and more robust, than on the arrival of the regiment, 9 months ago.

In addition to the charge of a regiment, my office as staff surgeon to the Scinde reserve, has afforded me a wider field, for observing the physical effects of the climate, upon that class of servants, who are neeessarily the most exposed, and most worked, — the camp followers; and with the exeeption of those, who were the victims of cholera, the ratio of casualties, did not exceed what might be caleulated upon, at any other station. Sinee the cholera left us, it cannot be said, that any disease prevailed epidemieally among these people. Of the commissioned offieers of the staff, none have been in siek quarters for 9 months with the exception of one officer, the Aeting Bazar Master, who suffered very severely from rheumatism; but his ease has been so mnch benefited by using the hot springs, that he has resumed his duties.

Sinee my arrival here, I have instituted many inquiries, with the view to obtain some information, as to the nature and physieal effects of the elimate upon the people themselves; the diseases to whieh they are liable, &e. From all I could learn, this place is esteemed by them "the healthiest spot in Scinde," and from what I have seen, their diseases appear few and simple, and, in their good opinion of the elimate, I am strongly inclined to concur; for a fresh sea breeze, blows here, almost with the regularity of a trade wind, and as no deleterious exhalations arise in this part of the country, it enjoys a happy exemption from endemic disease. Judging by the past few months, I might venture to say, that out of a regiment 1000 strong; 900 could be safely calculated upon, as fit for service, at any time of the year.

The thermal wells, are situated about 7 miles from Karrachee in an irregular chain of hills, which runs nearly East and West; the prineipal well is 97° 5′ there are other reservoirs cooler, and the hottest I could diseover, is 120° Farenheit. The water is used by the inhabitants, both as an internal diluent, and bath; and many important medical virtues are attributed to it. I have endeavoured to aseertain, to what, besides temperature, it owes its essential properties, and refer them to uncombined aeids, ehiefly the muriatic. These springs would, no doubt, prove useful in the cure of ehronic rheumatism, as was evineed in the instance of Captain ——, and a valuable auxiliary in cases of chronic bowel affections, syphilitie taints, and skin diseases.

At Fort Monorah about 6 miles from camp, there is an excellent beach for sea bathing; the water elear and the bottom composed of white sand. The fort stands upon a high roek jutting into the sea; the breeze is strong and refreshing. The Thermometer ranges about 5 degrees lower than in camp. I have, at different times, recommended cases of severe illness to be sent to this plaee, and all recovered more rapidly than I eould have expected. I do not know, a more promising site for a eonvaleseent station, for all siek sent down the river, from the upper stations; the only draw back, is, the diffieulty which at present exists of getting drinking water.

The following is the native division of climate and as far as my experience extends I look upon it as correct, I have appended the means of the daily temperature, as taken by me, sinee I have been at Karraehee.

Months.	*Weather.*	*Min.*	*Max.*
January February	Cold with cloudy sky	61 3	77 5
Mareh	Cold with showers of rain	63 13	85 17½
April May	Hot, clear sky a cool breeze during the night	69 24 75 5	88 10 90 15

Months.	*Weather.*	*Min.*	*Max.*
June	Hot	81 25	92 5
July	Moist atmosphere cloudy and heavy showers of rain with strong and W. S. W. winds	81 1	88 24
August		79 10	85 17
September		78 17	85 25
October	Midday very hot	71 ..	87 40
November	Cool	.. ..	.. ..
December	extremely cold	.. ..	.. .

I have had, but 9 months experience of Scinde, and that has been limited to Karrachee; and were I to hazard an opinion, from what I have seen of the place, and the country about it, I should say, that it gives fair promise of proving a healthy station; for at no period of the year, can the atmosphere be affected by the remote causes of endemic fevers.

Camp near Karrachee, 3rd November, 1839.

6.

Notes on the climate of Panchgunnee, situated on the Eastern side of the Table land of the Mahabuleshwur Hills.

After the establishment of the convalescent station of Malcolm Pait, it was observed, that during the monsoon, the eastern side of the table land of the Mahabuleshwur Hills, was comparatively free from the rain and fog, which are almost constantly present, during that season, at Malcolm Pait.

With the view, of observing these points of difference, and of ascertaining, whether there did not exist, on the table land,—a locality habitable at all seasons, and suitable for a cantonment for European troops, Sir John Malcolm directed, that an intelligent native should be stationed at Panchgunnee, during the monsoon of 1830.

Panchgunnee is a small village, about ten miles distant, from Malcolm Pait; it is situated on the eastern extremity of the table land, and overlooks the valley of Wye. Its elevation is estimated at 4000 feet above the level of the sea; that is, 2000 feet above the general level of the Deccan, and 500 feet below that of Malcolm Pait.

The native writer was instructed, to give his chief attention to the presence and duration of rain, fog, and sunshine; and to note daily, between 5 A. M. and 10 P. M. the number of hours, of their respective prevalence.

The following table exhibits an abstract of these observations.

Months.	Sunshine		Fog		Rain		Number of days observed.
	on days.	for hours.	on days.	for hours.	on days.	for hours.	
June from 24th inclusive	5	$15\frac{1}{4}$	4	$1\frac{3}{4}$	6	$21\frac{1}{2}$	
July	24	$158\frac{1}{2}$	13	16	27	100	
August	24	$132\frac{3}{4}$	16	$33\frac{3}{4}$	23	$66\frac{3}{4}$	
September	27	187	8	$8\frac{1}{4}$	15	21	
October to 12th inclusive	11	$82\frac{1}{2}$	1	$\frac{1}{4}$	10	$19\frac{1}{2}$	
Total monsoon	91	$575\frac{3}{4}$	42	60	81	$228\frac{3}{4}$	111

The Native writer was now carefully instructed, in the manner of observing, and registering the thermometrical indications; and with the view, of supplying data for a comparison of the temperature of Panchgunnee, with that of Malcolm Pait, during the fair season; he continued to reside at Panchgunnee from the 9th November 1830 to May 31st 1831. From the observations made during these months, the mean temperature of Panchgunnee during the fair season, was found to be 68° 1; mean maximum 75° 5; mean minimum 61° 2; mean daily variation 14° 3. In round numbers, 2 degrees of temperature higher than Malcolm Pait, and nearly, 4 degrees of greater daily variation 8 degrees of lower temperature than the Deccan, and 12 degrees less diurnal variation.

In order, that a still more accurate comparison of the monsoon season of Malcolm Pait and of Panchgunnee, might be instituted; an Assistant Apothecary was stationed at Malcolm Pait, during the monsoon of 1835, and an experienced Hospital Assistant was detached to Panchgunnee.

The Assistant at Panchgunnee, was supplied with a thermometer, and a pluviometer, similar in construction, to those with which the observations, at Malcolm Pait, were made. He was enjoined to observe, and register the temperature every 2nd hour, from sunrise to 10 P. M., and also, to note, whether there was fog, rain, or sunshine, at each period of observation. The daily and nightly rain falls, were separately registered.

The following table is an abstract of these observations, and exhibits the chief points of difference, between the climate of Malcolm Pait and Panchgunnee, during the monsoon.

	Amount of Rain.			Number of days (in 106) on wh. no rain fell.			Greatest daily fall.			Mean Temperature.		Mean daily Variation.	
	Mahabuleshwur, Malcolm Pait.	Panchgunnee.	Bombay.	Mahabuleshwur, Malcolm Pait.	Panchgunnee.	Bombay.	Mahabuleshwur, Malcolm Pait.	Panchgunnee.	Bombay.	Mahabuleshwur, Malcolm Pait.	Panchgunnee.	Mahabuleshwur, Malcolm Pait.	Panchgunnee.
June (17—30)	53.60	12.96	3.64	..	2	..	11.32	3.01	0.82	64.1	67.3	2 5	6.3
July	43.63	10.78	4.37	..	8	14	4.08	1.40	1.16	63.3	67.3	2.9	6.3
August	61.62	13.28	35.76	5	13	8	6.43	1.20	6.39	62.8	67.1	2.3	6.7
September...	37.57	13.52	12.17	5	8	5	4.34	2.00	3.27	65.7	66.8	4.8	7.1
	196.42	50.54	55.84	10	31	27	11.32	3.01	3.27	63.9	67.1	3.1	6.6

In regard, to the prevalence of fog and rain, and the presence of sunshine, at Panchgunnee, it was noted, that of 954 observations made on the state of the fog, viz. 9 daily observations on 106 days, from sunrise to 10 P. M.; fog was found absent on 385. Of a similar number of observations, made at the same time, rain was absent, at 471 observations.

Of 552 observations made on the absence, or presence of sunshine, viz. 6 daily observations, between sunrise and sunset, for 92 days; sunshine partial or full, was present, at 297 observations.

The following table exhibits in detail, the data from which, the above abstract statement, has been made; and also shews the hours, at which, the most frequent exemption from fog, and rain, had been observed.

	Number of days on which observations were made.	Number of days, on which, there was no fog, at the different hours of observation.									Number of days, on which, there was no rain, at the different hours of observation.									Number of days, on which, there was partial or full sunshine, at the different hours of observation.								
		6 a. m.	8 a. m.	10 a. m.	noon.	2 p. m.	4 p. m.	6 p. m.	8 p. m.	10 p. m.	6 a. m.	8 a. m.	10 a. m.	noon.	2 p. m.	4 p. m.	6 p. m.	8 p. m.	10 p. m.	6 a. m.	8 a. m.	10 a. m.	noon.	2 p. m.	4 p. m.	6 p. m.	8 p. m.	10 p. m.
June ...	14	4	4	9	6	10	4	2	..	1	3	5	9	8	9	4	2	1	1	not noted.								
July ...	31	10	14	18	23	23	17	15	6	5	13	20	19	21	24	19	15	11	9	14	18	22	25	23	14	..	..	..
August .	31	13	15	15	15	13	13	10	10	9	15	16	15	14	14	16	14	14	14	15	16	15	15	17	14	..	..	..
Septr. ..	30	12	21	21	22	13	9	3	..	..	22	21	24	22	13	12	11	10	11	7	18	21	18	16	9	..	..	..
Total ..	106	39	54	63	66	59	43	30	16	15	53	62	67	65	60	51	42	36	35	36	52	58	58	56	37	..	..	..

C. M.
Secy.

7.

An account of a Disease, which affects the Camels in the Province of Lus; called Photo Shootur, by the natives, and supposed by them, to have properties analogous to those of the Variolæ Vaccinæ — Extracted from Dr. Whinchester's *report on the Topography of Tatta.*

"The following facts connected with small pox, and communicated to me by Mr. Masson, a gentleman, well known for his very persevering and highly successful antiquarian researches, in Central and Upper Asia, will, I am sure, be interesting.

"In the province of Lus along the sea-coast S. W. of Karachi, of which Beila is the capital, and Sommeanee the sea port; the milkers of Camels affirm, that they have a disease called Photo-Shootur. Small pox in Lus is designated "Photo" so that Photo Shootur "implies the small pox of the Camel, which is an eruption on the udder of that animal; not more violent than, and in its pustule, similar to that, on the udder of the Cow. The Camels, which are thus affected, continue to give milk which is largely drank by the inhabitants, but both the men and the woman who milk them, are invariably seized with a pustular disease, similar to that on the Camels udder, on their hands and arms, never extending above the elbows. No one, has ever been known, to die from this eruption, and the natives themselves remark that those who have had the Photo-shootur, are uniformly exempt from small pox, which is a disease occasionally endemic in the district.

"* Inoculation is known in Lus; the virus being taken from a person labouring with small pox, and inserted on the wrist of healthy individuals (children)

* Inoculation is also known in Cabool, there, it is generally performed by the Syuds, who frequently do so, two or three times, before it takes effect.

who, if the operation is successful, which is not always the case, are seized with small pox, not limited to the hand and arm, but general over the body commonly mild, yet in some cases fatal.

"Although the inhabitants are aware that the Photo-shootur * is a preventive against small pox, they do not inoculate with its virus, in a manner similar to what they do, from the small pox pustule, which frequently brings on a disease, believed by these people, to be beyond the power of the Native Doctors, insomuch so, that the relatives of the sick, proceed to the shrine of some favourite saint: there, by propitiatory offerings, to invoke aid in favour of the disease."

Dr. Baron, President of the Section appointed to enquire, into the present state of vaccination, by the Provincial Medical and Surgical Association, — in forwarding to this Society, a copy of the report on vaccination, requested, that any information bearing on that subject, in possession of the Society, might be transmitted.

In compliance with this request, the above extract has been already communicated.

8.

Case of dislocation of the lower Jaw caused by the act of vomiting. Communicated by W. Mackie, Esq.

"Jovair Vammal, Hindoo weaver, aged about 18 years, of a spare lax habit of body; attended at the Native Dispensary on the 23rd September 1840. It was stated, that on his passage from Surat to Bombay, he was seized with severe sea sickness and while in the act of vomiting, completely dislocated his lower Jaw. In this state, 6 days after the accident, he made his appearance at the Dispensary. The dislocation was immediately reduced in the usual manner, but without noise."

9.

Note on the catalogue of articles of the Materia Medica; by A. Walker, *M. D.*

May not the efficacy of the Oleum Nigrum, from the seeds of the Celastrus, in Beriberi, depend, on the presence of creosote?

For Colophony, in note to p. 56, read resin of a species of Berberis; the natives think the resotta, the meconium of the Camel; it is to be found in every bazar in the Deccan.

In the article Hyperanthera Moringa for ½ ounce of oil read 6 ounces.

Sinapis alba, and *nigra*, are not the species of mustard, usually cultivated in the Deccan, which commonly are *sinapsis racemosa*, and another species, not yet very accurately defined.

* Mr. Masson could not recollect at what season of the year it was prevalent

QUARTERLY PROCEEDINGS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

Proceedings from May 15th, to October 1st, 1839.

MEMBERS ELECTED.

Corresponding.

Dr. Pruner, Chief Physician to the Military Hospital, and Professor in the Medical College at Cairo. M. M. J. Desjardins, Secretary to the Society of Natural History in Mauritius.

Ordinary.

W. Hardy, Esq. Assistant Surgeon, having refused to pay his annual subscription, has ceased to be a member of the Society.

Communications presented.

1. Letters from Sir George Ballingall, and Sir John Webb, Director General of the Ordnance Medical Department, acknowledging the receipt of the 1st volume of the Society's Transactions.
2. A letter from the Private Secretary to the Hon'ble the Governor, acknowledging the receipt of a copy of the 1st and 2nd volumes of the Society's Transactions.
3. Letters from the Secretary to the Bombay Geographical Society, the Medical Board at Madras, and the Deputy Inspector General at Madras, acknowledging the receipt of the 2nd volume of the Society's Transactions.
4. A letter from the Superintendent of the Government printing establishment, notifying that without the renewed authority of Government, the privilege of having circulars printed at the Government Press, would not be continued.
5. A letter from W. S. Boyd, Esq. Secretary to Government, requesting that six copies of all future publications made by the Society, be supplied to Government, for transmission to the Hon'ble the Court of Directors.
6. A letter from the Secretary to Government acknowledging the receipt of six copies of the 1st and 2nd volumes of the Society's Transactions.
7. A letter from Dr. A. Gibson, forwarding a parcel of Senna seed
8. A case of Lithotomy, by W. B. C. Graham, Esq.

9. Notes on the treatment of Cholera with Acetate of Lead, by C. Morehead, M. D.

10. Meteorological Observations made at Belgaum, from 1st January 1833, to 1st January 1839, by J. Doig, Esq. Presented by the Medical Board.

11. Abstract of Meteorological Observations made at Ootacamund, on the Neilgherry Hills, from the 1st June 1829, to 31st May 1836 inclusive, by J. Glen, Esq.

12. A Case of Tubercular Elephantiasis by A. Young, Esq.

13. Annual report of the field detachment stationed at Karrack in the Persian Gulf, by G. H. Davis, Esq. Presented by the Medical Board.

14. Topography of Tatta in Lower Scinde; by J. W. Winchester, Esq. Presented by the Medical Board.

15. A letter from Dr. Ross, at Baghdad, reporting the very general prevalence in July last, of fevers of different types, consequent on the drying up of the marshes formed by the inundation of the Tigris and Euphrates; the waters of which rivers had risen in May and June, between three and five feet higher than their usual annual rise.

16. Register of the Pluviometer at Bombay, for the months of July and August 1839, by G. Noton, Esq.

17th. Cases of Cardiac disease, by R. H. Hunter, Esq. H. M. 2nd Regiment.

COMMITTEE OF MANAGEMENT FOR 1840.

President.

J. McADAM, ESQ.

Members.

R. H. KENNEDY, M. D. J. GLEN, ESQ.
J. BIRD, ESQ. J. McLENNAN, ESQ.

Secretary for 1840-41.

C. MOREHEAD, M. D.

Proceedings from October 1st 1839, to 1st January 1840.

MEMBERS ELECTED.

Ordinary.

John Craig, Esq., and C. R. O. Bloxham, Esq., Assistant Surgeons, elected in accordance with Regulation 7.

Communications Presented.

1. A letter from Dr. Goodeve, thanking the Society for the copy of the 2d volume of the Society's Transactions presented to the Medical and Physical Society of Calcutta.

2. A letter from Dr. Pruner, Chief Physician to the Military Hospital and Professor in the Medical College at Cairo, acknowledging the receipt of the 1st and 2d volumes of the Society's Transactions.

3. A letter from Dr. Gibson, forwarding a parcel of the dried leaves of a Crinum.

4. A letter from W. S. Boyd, Esq., Secretary to Government, expressing the intention of Government, to subscribe for 100 copies of each of the future annual volumes of the Society's Transactions.

5. Topography of Jerruck, by J. W. Winchester, Esq., presented by the Medical Board.

6. Medical history of Her Majesty's 2d or Queen's Royal Regiment from the 1st of April 1838 to the 31st of March 1839, by R. H. Hunter, Esq.

7. Three cases of Barbiers, by R. H. Hunter, Esq.

8. A Register of the Pluviometer at Bombay, from the year 1837 to 1839, and for July, August, and September 1839, by G. Noton, Esq.

9. Report on the diseases at Sukkur in May, June, and July 1839, by J. Don, M. D., presented by the Medical Board.

Proceedings from the 1st January, to 31st March, 1840.

MEMBERS ELECTED.

Ordinary.

J. Atkinson, Esq. Assistant Surgeon, Bombay Establishment.

J. N. Pinkerton, M. D. Assistant Surgeon, elected in accordance with Regulation 7.

Communications presented.

1. A letter from Monsieur L. Bouton, Secretary to the Society of Natural History at the Mauritius, acknowledging the receipt of the 2d volume of the Society's Transactions.

2. A letter from Dr. Gibson, forwarding a specimen of the oil extracted from the Celastrus paniculatus. This is the *Oleum nigrum* of Dr. Herklots, recommended for the treatment of Beriberi.

3. A letter from Dr. Gibson, forwarding a parcel of the Indian Misletoe.

4. A letter from D. C. Bell, Esq. Superintending Surgeon, forwarding a specimen of a species of Lizard called *Chundun Goo* by the natives of Guzerat, and the bite of which, is supposed by them, speedily to prove fatal.

5. A letter from A. Burn, Esq. Civil Surgeon, Kaira, placing at the disposal of the Society a register of deaths and births in the town of Kaira, from the 11th March 1837 to the 1st February 1840.

6 Annual report of the field detachment at Balmeer, for the year 1838, by S. P. Prichard, Esq. Presented by the Medical Board.

7. A dangerous case of flooding arising from adhesion of a portion of placenta, accompanied with irregular contractions of the uterus, by T. Waller, Esq.

8. A short sketch of the Medical Topography of Snkkur and of the diseases which prevailed in the brigade there, from March to December 1839, by J. Don, M. D. Presented by the Medical Board.

9. Annual report of the Sick in the hospital of the Marine Battalion N 1. for 1838, by J Burnes, Esq. K. H.

10. Annual report of the field detachment at Balmeer for 1839, by S. P. Prichard, Esq. Presented by the Medical Board.

11. Annual report of the 7th Regiment N. I. for 1839, by A. Weatherhead, M. D. Presented by the Medical Board.

12. Report on the station of Karachee, referring particularly to the months of August, September, and October 1839, by F. S. Cahill, M. D. Presented by the Medical Board.

13. Report of Diseases in the 22d Regiment Bombay N. I. stationed at Tatta and while in progress in boats up the Indus, during the months of August, September, and October 1839, by J. Inglis, Esq. Presented by the Medical Board.

14. A case of chronic pleuritis, in which the operation of paracentesis thoracis was performed, by J. Bourchier, M. D.

15. A catalogue of articles of the Materia Medica of Europe and India, found at Aurungabad and in its vicinity, by A. Walker, M. D. His Highness the Nizam's Service.

16. A case of difficult labour in which the left arm presented, and in which, turning at a late stage, was successfully had recourse to, by A. Walker, M. D., H. H. Nizam's Service.

17. Register of the Thermometer kept at Kaira, from January 1838 to January 1840, by A. Burn, M. D.

18. A map of the town and cantonment of Kaira, by A. Burn, M. D.

19. A calculus extracted from the male urethra in 1838 at Kaira, by A. Burn, M. D.

Proceedings from the 1st April to 31st June 1840.

MEMBERS ELECTED.

Ordinary.

J. H. Peart, Esq. Assistant Surgeon, Bombay Establishment.

Communications presented.

1. A letter from H. Hadley, Esq., Assistant Surgeon, requesting that his name be withdrawn from the list of Members.

2. A letter from the Deputy Inspector General of Her Majesty's Hospitals, at the Cape of Good Hope, acknowledging the receipt of the 2d volume of the Society's Transactions.

3. A letter from A. Gibson, Esq., describing the operation for Lithotomy as performed in his presence, by Boodun Shustr Weyd of the village of Jowla in the Deccan.

4. Annual Report of the Hospital department of the European troops of the corps d' armee of Scinde from 1st January to 31st December 3839. By R. H. Kennedy, M. D. Presented by the Medical Board.

5. Surgical cases by J. H. Peart, Esq.

6. Annual Report of the Native General Hospital for the years 1838 and 1839, presented by the Medical Board.

7. Annual Report of the 1st Regiment, Bombay European Infantry, for 1839. By A. Howison, Esq , presented by the Medical Board.

8. Report on the cases of Aden ulcers received into the Marine Battalion Hospital, Bombay, 1839. By A. Campbell, M. D.

9. Annual Report of the diseases in the Jail and Detachment Hospitals at Rutnagherry, from the 1st January to the 31st December, 1839. By J. Bourchier, M. D. presented by the Medical Board.

10. Practical observations on the pathology and treatment of tropical Dysentery, by James Bird, Esq.

11. Specimen of a Calculus extracted from the urethra by J. H. Peart, Esq.

Proceedings from 1st July to 30th September 1840.

MEMBERS ELECTED.

Ordinary.

J. Jackson, Esq. Bengal Medical Establishment and J. G. Malcolmson, Esq. lately of the Madras Medical Establishment.

R. Hoskin, Esq. J. H. Carter, Esq. T. Clark Esq. and R. Woosnam, Esq. Assistant Surgeons, elected, in accordance with Regulation 7.

Communications presented.

1. A letter from J. Bird, Esq. requesting that his name be withdrawn from the list of Members and from the Committee of management.

2. A letter from the Royal Medical Society, Edinburgh, thanking the Society for the copy of the Transactions, presented to them.

3. A letter from Sir A. Cooper, Bart. thanking the Society for the 2d volume of Transactions, presented to him.

4. A letter from A. Weatherhead, M. D. regarding rhe Meteorological observations made at Mhow.

5. Annual Report of the diseases of H. M. 2d or Queen's Royal Regiment from the 1st of April to the 31st March, 1840, by R. H. Hunter, Esq.

6. Extract from the Annual Statistical Report of Lower Scinde, Cutch Gundava, Sewestan, Affghanistan and Beloochistan, from 1st December 1839, to 30th May, 1840, by R. H. Hunter, Esq.

7. Register of the Pluviometer at Bombay for the months of June and July, presented by G. Noton, Esq.

8. Notes on Scurvy, as it has appeared at various times, in the Jail at Rutnagherry by J. Bourchier, M. D.

9. Case of Rheumatism by A. Duncan, Esq.

LIST OF DONATIONS FOR THE LIBRARY.

By the Editor.

Madras Quarterly Journal, 1st vol.

By F. Corbyn, Esq.

The India Journal of Medical and Physical science, volume iii.

By Dr. Baron, Chairman of the Section.

A Report on the present state of Vaccination by the Section of Vaccination of the Provincial Medical Association.

By Government.

Two copies of the Rev. Mr. Taylor's examination, and analysis of Colonel Mackenzie's manuscript.

By H. B. E. Frere, Esq.

Two copies of a Report on Cholera Morbus, as occurring in Malta, by Guiseppee Maria Stilon, &c. &c. &c.

By Sir J. McGrigor, Director General of the Army Medical Department.

Statistical Reports on the Sickness, Mortality and Invaliding among the troops of Her Majesty's army, Parts 1st and 2nd.

By J. G. Malcolmson, Esq. Madras Medical Department.

A Pamphlet on the causes of Bronchocele in India and England, reprinted from No. xv. of the British and Foreign Medical Review.

By Dr. T. Pruner, Chief Physician to the Military Hospital and Professor in the Medical College at Cairo.

Treatise on the plague, &c.

By M. L. Bouton, Esq. Secretary to the Society of Natural History in Mauritius.

A copy of the annual Report of the Society of Natural History in Mauritius.

By Dr. Goodeve, Professor of Anatomy in the Medical College of Bengal.

A Report on the Medical College of Bengal.

LIST OF MEMBERS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

ORDINARY MEMBERS BOMBAY PRESIDENCY.

The asterisk (*) marks those members who are absent on furlough or sick leave.

* Arnott, A., M. D., *Assistant Surgeon.*
Arnott, F. S., M. D., *Assistant Surgeon.*
Atkinson, J. J., Esq., *Assistant Surgeon.*

Babington, W. F., Esq., *Assistant Surgeon.*
Barrington, W. B., Esq., *Assistant Surgeon.*
Baxter, R. Esq., *Assistant Surgeon.*
Behan, R. J. Esq., *Assistant Surgeon.*
* Bell, D. C., Esq., *Superintending Surgeon.*
Black, C., M. D., *Assistant Surgeon.*
Bloxham, C. R. O., Esq., *Assistant Surgeon.*
Bourchier, J., M. D., *Assistant Surgeon.*
Boyd, J., Esq., *Surgeon.*
* Brickwell, J., Esq., *Assistant Surgeon.*
Brown, R., M. D., *Assistant Surgeon.*
* Burn, A., M. D., *Assistant Surgeon.*
Burnes, J., *K. H*, M. D., *Surgeon.*

Cahill, F. S., M. D., *Surgeon.*
Calvert, W., Esq., *Assistant Surgeon.*
Cannon, P., Esq., *Assistant Surgeon.*
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Carter, J. H., Esq., *Assistant Surgeon.*
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Duncan, A., Esq., *Surgeon.*

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Fogerty, W. K., Esq., *Surgeon in Bombay.*
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Fraser, J., Esq., *Assistant Surgeon.*

* Frith, R., M. D., *Surgeon.*

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Henderson, A., Esq., *Superintending Surgeon.*
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Hunter, R. H., Esq., *Assistant Surgeon, H. M. 2d.*

* Inglis, J., M. D., *Surgeon.*

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* Lush, C., M. D., *Assistant Surgeon.*

Mackie, W., Esq., *Surgeon in Bombay.*
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McKenzie, T., Esq., *Assistant Surgeon.*
McKenzie, J., Esq., *Assistant Surgeon.*
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Thompson, M., Esq., *Assistant Surgeon.*

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H. S. Fleming Esq., *Surgeon, Madras Establishment.*

W. Middlemas, Esq., *Assistant Surgeon, Madras Establishment.*
J. Dorward, Esq., *Assistant Surgeon, Madras Establishment.*
A. Anderson, Esq., *Acting Surgeon to H. B. Majesty's Superintendent in China.*
J. G. Malcolmson, Esq., *formerly, Surgeon Madras Establishment.*

CORRESPONDING MEMBERS.

T. Williamson, Esq., *B. C. S.*
J. A. Dunlop, Esq., *B. C. S.*
J. S. Law, Esq., *B. C. S.*
Captain Shortrede, *Superintendent of the Trigonometrical Survey.*

Dr. Pruner, *Chief Physician to the Military Hospital and Professor in the Medical College at Cairo.*
M. M. J. Desjardins, Esq., *Secretary to the Society of Natural History in Mauritius.*

ERRATA.

Page 56 line 2 *for* "Loyala" *read* Loyola
—— 56 — 13 *for* "a Hindoo" *read* an Indian
—— 58 — 11 *for* "*Ligusticuun*" *read Ligusticum*
—— 59 — 17 Note, *for* "and" *read* ad
—— 60 — 4 *for* "Bilerica" *read* Bellerica
—— 60 last line Note *for* "Madr. Gateway. Journal." *read* Madr. Gateway Literary Journal
—— 61 — 12 *for* "*Delenii*" *read Dilenii*
—— 64 — 2 *for* "the surface, it is no, &c." *read* the surface, and it is no, &c
—— 65 — 2 *for* "and a half" *read* quarter
—— 65 — 8 *for* "Rumphias" *read* Rumphius
—— 66 — 20 *for* "*Tamarix diæen*" *read Tamarix diæca*
—— 66 — 25 transpose (W. and Arnott.) to line 26 after *Fagonia mysoriensis*
—— 70 — 30 *for* "RUBEACEÆ" *read* RUBIACEÆ
—— 70 — 32 *for* "cumlie" *read* cumbi
—— 75 — 8 *for* "at Phoohnurry" *read* at Phoolmurry
—— 75 — 33 *for* "contain" *read* contains
—— 76 — 33 *for* "or" *read* and
—— 78 — 15 *for* "Sellignea" *read* Selliguea
—— 78 — 2 Addenda, *for* "*Amyris*" *read Amyris Commiphora*
—— 85 — 28 *for* "to be" *read* from being
—— 87 — 4 *for* "put in an" *read* put on an
—— 88 — 16 *for* "to is production" *read* to its production
—— 140 — 16 *for* "during dusk" *read* driving dust
—— 144 — 6 *for* "*Meredie*" *read Meridie*
—— 144 — 23 *for* "*Meredie*" *read Meridie*
—— 149 — 18 *for* "Kudny" *read* "Kuduny"
—— 155 — 12 *for* "6th of September" *read* 16th of September
—— 166 — 31 *for* "the gate" *read* the citadel gate
—— 180 — 6 & 7 *for* "the eight days" *read* the first eight days.

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